



REPORT

ON THE

Health of the County Borough of Bootle
during the year 1919,

BY

W. ALLEN DALEY,

M.D., B.Sc. (LOND.), D.P.H. (CAMBRIDGE), B.A.

Medical Officer of Health,

Administrative Tuberculosis Officer,

Medical Superintendent of the Corporation Hospital and Sanatorium.

School Medical Officer.

BOOTLE :
BOOTLE TIMES, LIMITED, 30, ORIEL ROAD.

—
1920.

CONTENTS.

Page	Page
Anti-Natal Clinic 50, 90-91	Measles 29
Antitoxin, Diphtheria 28	Meat Inspection 21
Ashtrips, Conversions 15	Midwives Acts 54
Bacteriological and Pathological Examinations 33, 47, 61	Milk and Cream Regulations 21
Bakehouses 22, 79-80	Milk, Tuberculous 20
Births 10	Milk (Mothers and Children) Order 21
Bootle Health Society 21, 49, 58, 59	Milk 18-23
Bronchitis 33	Mortality in relation to sex 12
Canal Boats 76	in connection with Child Birth ... 56
Cancer 33	Natural Increase 10
Census 9	Neo-Natal Mortality 12
Cerebro-spinal Fever 30	Notification of Births Acts 48
Child Mortality 13	Infectious Diseases 82
Cinematograph Shows 17, 75	Nuisances 75
Closest Accommodation 14	Nurses, District 52
Contagious Diseases of Animals Act 32-33	Offensive Trades 17
Convalescent Treatment for Children 52	Ophthalmia of the newly-born 51
Conveniences, Public 14	Overcrowding 64, 84
Council, Members of 3	Parasitic Mange 32
Dairies, Cowsheds, and Milkshops 18, 76	Plithisis 34
Deaths 11, 72	Plague 31
Dental Work 45, 58	Pneumonia 31
Diarrhoea 32	Pigs 33
Diphtheria 27	Poliomyelitis, Acute 30
Disinfection 77	Poor Relief 10
District Nurses' Association 52	Population 9
Drainage and Sewerage 13	Puerperal Fever 56
Encephalitis Lethargica 30	Rag Flock Act 61
Enteric Fever 29	Rat Extermination 31
Erysipelas 30	"Return" cases of Scarlet Fever 26
Fabrics (Misdescription) Act 58	Salvarsan Substitutes 47
Factory and Workshops Acts 78-80	Sanatorium, Maghull 36, 85
Fernhill Road Tip 15	Sanitary Work, Details of 16, 59, 75-77
Filthy Houses 77	Scarlet Fever 25-27
Food and Drugs Acts, Sale of 22, 81	Scavenging 14
Food 18-24	Schools and School Closures 17-18
Food Control Committee 24	Sewerage 13
Flushing 80	Smallpox 28
Gasworks, Nuisance from 17	Smoke Nuisance 17
Heart Diseases 33	Staff 4
Home Helps 56	Statistical Summary 8
Hospital for Infectious Diseases 27, 59, 92-94	Still-births 50
" Treatment of Children 52	Sub-let Houses 16, 68
" Bootle Borough 10	Staff 4, 59
" Maternity 57-58	Trench Fever 31
Housing 62-69, 95	Tuberculosis 33-46, 85
Illegitimate Children 53	Officer—Special Report of 40-45
Infant Consultations 49	" Dispensary 35
Infantile Mortality 12, 73	" Pulmonary 34-45, 83, 84
Infectious Diseases 25-33, 71, 82	" Non-Pulmonary 45, 83
Influenza 30	Typhoid Fever 29
Infant Welfare Visitors' Work 89	Underground Sleeping Rooms 17
Leasowe Hospital 45, 52	Vaccination 28
Linaeae Hospital, Phthisis 39, 85	Venereal Diseases 46-48, 51, 86, 89
Local Powers relating to Public Health ... 96	" Clinic 46, 47, 86-89
Lodging Houses, Common 16	" Act 48
Margarine 24	Vital Statistics 10, 70, 74
Malaria 31	Vincent's Angina 29
Maternity and Child Welfare 48-59	Water 13, 75
" Hospital 57, 58	Water Analyses 75
	Whooping Cough 30
	Workshops 78-80
	Zymotic Diseases 25, 82

BOOTLE TOWN COUNCIL, 1918-1919.

†*His Worship the Mayor (H. PENNINGTON, Esq.).

Mr. ALDERMAN BARBOUR, J.P.	†Mr. COUNCILLOR GILL.
†Mr. ALDERMAN BOOTH.	*Mr. COUNCILLOR HARRIS.
Mr. ALDERMAN BREWSTER, J.P.	*Mr. COUNCILLOR HUGHES.
*Mr. ALDERMAN CARRUTHERS.	†Mr. COUNCILLOR JOHNSTON, J.P.
ALDERMAN SIR WM. CLEMMEY, J.P.	*Mr. COUNCILLOR F. W. KING.
*Mr. ALDERMAN HANLON.	†*Mr. COUNCILLOR J. J. KING.
Mr. ALDERMAN JONES, J.P.	Mr. COUNCILLOR LAMB.
Mr. ALDERMAN MACK, J.P.	Mr. COUNCILLOR LITTLER.
|*Mr. ALDERMAN PEARSON, M.R.C.S., J.P.	|Mr. COUNCILLOR MAHON.
|*Mr. ALDERMAN ROBERTS, L.R.C.P., J.P.	*Mr. COUNCILLOR MANSERGH.
†Mr. ALDERMAN SMITH, J.P.	|*Mr. COUNCILLOR MARMION.
Mr. ALDERMAN TOMLINSON.	Mr. COUNCILLOR MITCHELL.
Mr. COUNCILLOR ASHTON.	†*Mr. COUNCILLOR MUSKER.
|*Mr. COUNCILLOR BAILEY.	Mr. COUNCILLOR PATRICK.
Mr. COUNCILLOR BAUCHER.	*Mr. COUNCILLOR E. PENNINGTON.
|*Mr. COUNCILLOR BELL.	|*Mr. COUNCILLOR RAFTER, L.R.C.P.
|*Mr. COUNCILLOR BLACKLEDGE.	|Mr. COUNCILLOR RANDALL, J.P.
*Mr. COUNCILLOR CASSADY, J.P.	Mr. COUNCILLOR SCOTT.
Mr. COUNCILLOR DOUGHERTY.	|*Mr. COUNCILLOR TURNER, M.A., M.D.
Mr. COUNCILLOR EACHUS.	Mr. COUNCILLOR VAUX.
|*Mr. COUNCILLOR EATON, J.P.	Mr. COUNCILLOR WINSTANLEY, J.P.
|*Mr. COUNCILLOR ELLIS.	Mr. COUNCILLOR WOLFENDEN.

* Member of Health Committee.

† Member of Housing and Town Planning Committee.

HEALTH COMMITTEE.

Chairman—Mr. COUNCILLOR TURNER, M.A., M.D.

Deputy-Chairman of Health Committee and Chairman of the Hospitals

Sub-Committee—Mr. COUNCILLOR BAILEY.

MATERNITY AND CHILD WELFARE COMMITTEE.

This Committee consisted of all the members of the Health Committee, together with the following representatives of the Bootle Health Society:—

Chairwoman—Mrs. H. PENNINGTON (ex-officio).

Honorary Secretary—Mrs. W. A. DALEY (ex-officio).

Mrs. J. G. BLACKLEDGE.

Mrs. L. SMALL.

and representatives of the Bootle Insurance Committee:—

Mr. J. S. KENWORTHY.

Mr. W. MCLEAN.

Chairman—Mr. COUNCILLOR TURNER, M.A., M.D.

Deputy-Chairman—Mr. COUNCILLOR BLACKLEDGE.

HOUSING AND TOWN PLANNING COMMITTEE.

Chairman—Mr. COUNCILLOR BAILEY.

Deputy-Chairman—Mr. COUNCILLOR MARMION.

STAFF OF THE PUBLIC HEALTH DEPARTMENT.

Medical Officer of Health, Administrative Tuberculosis Officer, Medical Officer South Infant Consultation, and Medical Superintendent of the Corporation Hospitals—
W. ALLEN DALEY, M.D., B.S., B.Sc. (Lond.), B.A. (R.U.I.), D.P.H. (Cambridge).

Deputy Medical Officer of Health and Tuberculosis Officer—
H. J. MILLIGAN, M.C., M.D., Ch.B. (Glas.), D.P.H. (Cambridge).

Assistant Medical Officer of Health and Medical Inspector of Scholars—
J. MAXWELL TAYLOR, M.A., M.B., Ch.B., D.P.H. (Aberdeen).

Corporation Hospital, Linaere Lane—

Resident Medical Officer - - - Vacant.

Temporary Visiting Medical Officer—C. V. McCORMACK, M.R.C.S., L.R.C.P., D.P.H., J.P.
Matron - - - - - Miss M. JOHNSON.

Maghull Sanatorium—

Visiting Medical Officer (Part-time) - - A. HENDRY, M.D. (Liverpool).
Matron - - - - - Miss E. HOLDEN.

Inspector of Nuisances, Inspector under the Food and Drugs Acts, and the Housing, Town Planning, etc., Act., etc.—
†‡R. J. McCULLOCH

Assistant Inspectors of Nuisances—
†B. J. HOLDEN. †‡B. WILLIAMS. †J. G. HOOLE.

Clerical Staff—

*Chief Clerk—*N. LOCKWOOD.

Miss WILSON. Miss HERSON. Miss HIRD. Miss SMITH. Miss MAXWELL.

Infant Welfare Visitors—

§†Miss A. STOTT. †Mrs. MCKOWEN. §*Miss M. WALKER. §*Mrs. ROGER.

*Tuberculosis Nurse—*Nurse KELLY.

Tuberculosis Visitor—§*Mrs. MEREDITH.

North Infant Consultation—
Medical Officer (Part-time)—Miss EDNA MAWSON, M.B. (Liverpool).

Ante-Natal Clinic—

Medical Officer (Part-time)—R. A. HENDRY, M.D. (London).

† Certified Inspector of Nuisances.

‡ Certified Inspector of Foods.

* Certified Health Visitor.

§ Certified Midwife.

"A business man would act unwisely if he failed to keep accounts; the worker in science must record his findings if he would build for the future as well as meet the needs of the present."—(Sir George New-
man, M.D.)

Health Department,

Town Hall,

Bootle,

May, 1920.

*To the Mayor, Aldermen and Councillors of the
County Borough of Bootle.*

I herewith present to you my ninth Annual Report, being the forty-seventh of the series, on the operations of the Public Health Department during the year 1919. The Ministry of Health have this year issued a memorandum as to the contents and arrangement of the annual reports of Medical Officers of Health for 1919, with the result that this report will be on similar lines to that for 1914, and will be somewhat more stereotyped than its immediate predecessors. It is intended, however, that annual reports should be more readable than in pre-war days, and, as the following quotation from the Ministry's circular shows, that they should be important factors in the education in health of the community:—

"It is further suggested that your Council should arrange for the Report to be distributed locally, as soon as it is available, as widely as possible, and should take steps through the local press and otherwise, to bring its contents effectively to the knowledge of the people. One of the main purposes of the compilation of the Report is that, by giving it the widest possible publicity, it shall engender a popular interest in the subject, and an enlightened public opinion which shall support the Local Authority in realising its high responsibilities for the health of its area, and in remedying, at the earliest opportunity, the various defects which the survey may bring to light, whether arising from war conditions, or from other

causes. Such an increase of public knowledge and interest in these matters may also become an effective means of educating the citizens in the more important conditions of public health, of warning them against particular dangers, and of securing that highly important co-operation and confidence between them and the Health Authority and its staff, which is essential to successful health administration."

The outstanding features of the year, from the Public Health point of view, have been:—

- (1) The occurrence of eight cases of smallpox in January and February.
- (2) A third wave of influenza which caused 99 deaths in February and March.
- (3) The lowest rate of infantile mortality ever recorded in Bootle.
- (4) The lowest death-rate, with one exception, ever recorded in Bootle.
- (5) The lowest recorded death-rates from tuberculosis and from zymotic diseases.
- (6) Continued prevalence of scarlet fever and diphtheria.
- (7) Progress, however slow, with the erection of municipal houses.

Early in the year, Dr. Milligan (who has been decorated with the Military Cross and Bar), Dr. Taylor, and Miss Holden (Royal Red Cross First Class), all returned to duty. Dr. Cowe, who had performed invaluable work under conditions of great difficulty, retired from her post as Temporary Assistant Medical Officer of Health, and Nurse Kelly relinquished her temporary office at Maghull which she had held for over two years, and resumed her duties as Tuberculosis Nurse.

The Resident Medical Officership at the Linacre Hospital has not yet been filled pending a reorganisation of the medical staff of the department, and the completion of the new pavilion for advanced cases of tuberculosis; in the meantime Dr. McCormack has continued to take duty there on alternate days.

Attention is directed to a special report on Tuberculosis by Dr. Milligan which appears on page 40.

Without exception, the staff have performed their allotted duties in exemplary fashion, especially the clerical staff under Mr. Lockwood, who is responsible for the accuracy of the statistics in this report, and the Inspector of Nuisances, Mr. McCulloch.

As the compilation of the next annual report will be in other hands than mine, I cannot conclude without asking you to accept my tribute to the patient and careful consideration which you have invariably given to my suggestions and to the readiness with which you have always carried out my recommendations.

I have the honour to be,

Your obedient servant,

W. ALLEN DALEY,

Medical Officer of Health.

STATISTICAL SUMMARY FOR 1919.

Area in Acres (inclusive of Dock Estate)	...	...	...	1,947
Area in Acres (exclusive of Dock Estate)	...	...	...	1,610
Population at Census of 1911	...	...	...	69,876
Estimated Total Population in July, 1919	...	...	...	80,172
Estimated Civilian Population in July, 1919	...	...	...	76,962
Population per Acre (excluding Dock Estate)	...	...	...	47.8
Number of Houses in the Borough on December 31st, 1919	...	13,424		
Average Number of Persons in each Inhabited Building (at Census, 1911)	...	...	...	5.63
Number of Births during 1919	...	...	...	1,914
Birth-rate per 1,000 of the population	...	...	...	23.87
Fertility-rate per 1,000 women aged 15 to 45 years	...	...	...	97
Number of Deaths	...	...	...	1,154
Death-rate per 1,000 of the population	...	...	...	15.0
Natural Increase of the Population during the year	...	...	...	760
Number of Deaths of Infants (under the age of one year)	...	...	...	184
Infantile Mortality per 1,000 Births	...	...	...	96
Number of Uncertified Deaths	...	...	...	24
Deaths from Influenza	...	...	...	116
Death-rate from Influenza per 1,000 of the civilian population	...	...	...	1.5
Death-rate from the seven principal Zymotic Diseases—Small-pox, Whooping-cough, Measles, Diphtheria, Diarrhoea, Scarlet Fever, and "Fever" (Typhoid, Enteric, and Typhus) —per 1,000 of the population	...	...	...	1.03
Death-rate from Diarrhoea and Enteritis, of children under two years, per 1,000 births	...	...	...	18.8
Death-rate from Phthisis per 1,000 of the total population	...	...	...	0.99
Death-rate from all forms of Tuberculosis per 1,000 of the total population	...	...	...	1.37
The Rateable Value of the Borough was for 1919-1920,	£490,621			
The Assessable Value	£411,650			
A penny rate on the District Fund produced in 1919-1920	£1.598			
In 1919-1920 the General District Rate was 4/2 and the total rates 10/8 in the pound (excluding water rate and charges).				

COUNTY BOROUGH OF BOOTLE.

ANNUAL REPORT
OF THE
MEDICAL OFFICER OF HEALTH.

NATURAL AND SOCIAL CONDITIONS OF THE DISTRICT.

1. *Population*.—This subject was considered at length in my last annual report. At the census of 1911 the population of Bootle was 69,876. The Registrar-General's estimate of the population in 1919 was civilians, 76,962; total, 80,172; but these estimates are certainly too low, because in October the number of ration books in use was 80,866, and this does not include soldiers, sailors, or persons in institutions; as shown last year some 6,910 members of the Mercantile Marine have their homes in Bootle. The result is that the birth-rates and death-rates which have been worked from the Registrar-General's estimates of the population, appear higher than they really are.

As stocktaking is essential to a business, so is the presentation of vital statistics to a community, and vital statistics are positively dangerous unless they are accurate. It is essential in order to ensure accuracy, that the census should be taken more often; further, in order to increase the value of the next census, you recommended the Ministry of Health in September last so to arrange the census of 1921 that precise information of the population in any particular street or area and incidences of overcrowding can be obtained by the Medical Officer of Health *immediately after* the census is taken. It is also desirable that an intermediate census should be taken in 1926, giving at least such essential particulars of the population as the total number of persons in the town, and the age and sex constitution of each household.

2. The *physical features* of the district and details of the occupations of the inhabitants are set out in detail in my report for 1914.

3. *Poor Law and Hospital Relief*.—The Clerk to the West Derby Board of Guardians has kindly supplied the following information:—

For the year ended 30th September, 1919, the total number of individual orders on the Medical Officer for out-door medical relief only, was 498 compared with 609, 669, 864, 1,120, and 1,464 in the five preceding years. For the half-year ended 30th September, the cases for out-door relief were 457, compared with 403, 546, 589, 618, and 835 in the same period of the five preceding years.

During 1919 1,179 in-patients and 12,975 out-patients were treated at the Borough Hospital; there being, compared with 1918, a decrease of 93 in-patients and an increase of 1,585 out-patients. Many Bootle people attend the Liverpool Hospitals.

VITAL STATISTICS.

4. *Births*.—During the year 1,860 births were registered in the district, and 54 children of Bootle parents were born in other districts. These 1,914 births represent a birth-rate of 23.9 per 1,000 of the population; that for England and Wales being 18.5. In 1918 the Bootle birth-rate was 22.5; for the decennium 1909-1918 it was 28.24. There were 995 males and 919 females, being a proportion of 1,083 males to 1,000 females.

The birth-rate has now begun to increase, being for the successive quarters of 1919:—18.6, 22.6, 23.2 and 28.5, but it is unlikely that it will ever attain the pre-war rate of 31.7, except for a limited period as a post-war phenomenon.

The ward with the highest birth-rate was Orrell, 28.9; Knowsley was the second highest, 28.5; and Stanley Ward was the lowest, 16.36; this order being the same as in the two preceding years.

The illegitimate births numbered 60, and were 3.1 per cent. of the total; 29 took place outside the borough. In 1918 the total number was 59, in 1917, 50, and in 1916, 67.

5. The *natural increase* of the population, i.e., excess of births over deaths, was 760, being a rate of 9.4 per 1,000 of the population; in

1918 it was 381, or only 4.7 per 1,000, and in 1917 660, or 8.6 per 1,000.

6. *Deaths.*—The number of deaths registered in Bootle during the calendar year was 988. This number includes the deaths of 79 non-residents which occurred in the borough; 46 of these died in the Borough Hospital and 29 in Linacre Hospital. Two hundred and forty-five persons who died in other parts of the country were stated to have been inhabitants of Bootle. These include 172 who died in Poor Law Institutions, 29 who died in Voluntary Hospitals in the City of Liverpool, and 25 in Lunatic Asylums.

When the necessary adjustments have been made the total number of deaths assigned to Bootle is 1,154, which is a death-rate of 15.0 per 1,000 of the civilian population; in 1918 it was 19.4 and in 1917 17.6.

Only once before, namely, in 1910, when it was 14.7 has the rate been lower, hence the recorded rate for 1919 of 15.0 per 1,000 may be regarded with considerable satisfaction. Owing to the population being under-estimated, it is probable, however, that the true rate for 1919 is the lowest ever recorded in the town.

The number of deaths which occurred in institutions was 380, i.e., 33 per cent. of the total deaths, compared with 27 per cent. in 1918 and 31 per cent. in 1917; the increase is probably in consequence of overcrowding owing to demobilisation making it difficult to retain invalids at home.

The crude death-rate of the 96 great towns during 1919 was 13.8, compared with 18.2 in 1918, and 14.6 in 1917.

The death-rate in Bootle for the decennium 1909-1918 was 17.4, and for 1899-1908, 19.1.

This year the highest death-rate was in Mersey Ward, 19.5; Knowsley has the second highest rate, 18.5; Derby has the lowest rate, 10.7; this being in the same order as in 1918.

The death-rate during the first quarter of the year was 25.4; during the second, 10.7, the third 9.4, and the fourth 14.3. The high rate during the first quarter was in consequence of the third wave of influenza.

7. *Mortality in Relation to Sex.*—There were 612 deaths of males and 542 of females.

8. *Infantile Mortality.*—There were 184 deaths of infants, compared with 210 in 1918, 187 in 1917, and 227 in 1916. The infantile mortality rate was 96 per 1,000 births compared with 116 in 1918, 99 in 1917, 109 in 1916, and 123 in the decennium 1909-1918. It is the lowest ever recorded in the town. The Registrar-General's rate already published was only 94 per 1,000 births, but it refers to the rate of infantile mortality during the 53 weeks ended 3rd January, 1920. The rate of infantile mortality amongst males was 121, and amongst females 75. Throughout England and Wales the rate of infantile mortality was 89 per 1,000 births; in the 96 great towns it was 93. Appendix 4 (page 73) gives the causes of the infantile deaths; the more important are:—bronchitis and pneumonia 46, diarrhoea 32, prematurity 35, atrophy, debility and marasmus 16.

The rate of infantile mortality amongst legitimate infants was 94 per 1,000 births, and amongst the illegitimates 150.

This year Knowsley Ward had the highest rate, viz., 138, and Mersey the second highest, 120. The lowest rates were Orrell, 81; and Derby, 54. The decennial rates shown below give a clear indication as to the location of the forces inimical to child life.

INFANT MORTALITY RATES.

Ward.	Decennial Rate. 1909-1918.				1919.
Mersey	161	...	120
Knowsley	147	...	138
Stanley	110	...	93
Linacre	108	...	94
Derby	108	...	54
Orrell	95	...	81

Forty-five children died before they were a week old, and a total of 68 or 37 per cent. of all the deaths under one year occurred in children under the age of one month. This is a neo-natal mortality rate of 36 per 1,000 births compared with 31 last year, 29 in 1917, and an average of 35.9 for the decennium 1909-1918.

These figures show that we have not yet been able to make any appreciable reduction in the death-rate of children under the age of one month, and impel us to develop, at the very earliest opportunity, our schemes for promoting and improving the health of expectant mothers.

9. *Child Mortality.*—In 1919 there were 125 deaths of children aged 1 to 5 years. The principal causes were:—Respiratory diseases, 51 (including 25 from broncho-pneumonia); influenza, 12; tuberculosis, 12; diarrhoea, 5; scarlet fever, 5; measles, 11; whooping-cough, 1. This mortality from 1 to 5 years of age reflects accurately the sanitary condition of the child's environment, and will be reduced as housing and other conditions affecting vitally the lives of the people are improved.

SANITARY CIRCUMSTANCES OF THE DISTRICT.

10. *Water.*—Water is supplied to the town by the Liverpool Water Committee, on which this Authority has statutory representation. The greater part of the district is supplied with upland surface water derived from Vyrnwy and Rivington. For the supply of the upper parts of the Borough, a little deep well water from the Green Lane Well is mixed with the Vyrnwy and Rivington water. The monthly analyses show the quality to be excellent. The report on the December water and on a sample of the mixed water as supplied to the Town Hall will be found in the Appendix 6 (page 75).

11. *Drainage and Sewerage.*—The sewerage system is entirely by gravitation, discharging direct into the River Mersey. The Borough is divided into four drainage districts, with four separate outfalls into the river. One of these outfalls is used solely for Bootle, and one in addition conveys the sewerage from Walton Gaol, situate within the City of Liverpool; one is used jointly with Liverpool, and the fourth drains a part of Seaforth and the greater portion of Litherland, both Urban Districts.

Speaking generally, the sewers within the Borough are, so far as is known, sufficient for the needs of the Borough, though occasionally, after very heavy rainfall, a few of the cellars in the lower part of the town are flooded.

The sewers have good falls, and, with the exception of some passage sewers, are self cleansing; to these latter, automatic flushing tanks, supplied with salt water, are fixed.

Since October, 1903, all new house drains have been subjected to a water test before finally being approved.

12. *Closet Accommodation.*—Every house (with the exception of 23 in the out-lying parts of Orrell), is provided with one water closet or more. The conversion of middens, with the exception of the 23 already mentioned, was completed in 1910.

13. *Public Conveniences.*—There are 28 public conveniences; there being water closets in 5 of them. There is no convenience at all for women.

14. *Scavenging.*—The following is the number of ashbins and ash-pits in the Borough:—

			1919.		1918.		1914.
Ashbins	...	...	4,726	...	4,722	...	4,645
Ashpits, single	...	...	1,457	...	1,465	...	1,486
Ashpits, double	...	...	4,315	...	4,323	...	4,336
Pail Closets	...	...	Nil	...	Nil	...	Nil
Middens, single	...	...	21	...	21	...	21
Middens, double	...	...	2	...	2	...	2

The ashbins were emptied once every two weeks, but towards the end of the year, the interval was reduced to a week; ashpits were emptied every four to ten weeks and middens every eight weeks. Ashpits emptied during the year ended 31st March, 1920, numbered 34,752 and ashbins 188,950.

In emptying ashpits the contents are shovelled into light baskets, which are wheeled along the passages and emptied direct into covered carts. The house refuse collected during the year ended March 31st, 1920, amounted to 24,548 tons, of which 14,334 tons were destroyed at the Destructor, and 11,811 tons were tipped at the Fernhill Road tip within the Borough. This and most of the foregoing information under "Drainage and Sewerage" has been kindly supplied by the Borough Engineer.

Labour difficulties were less acute than in 1918, but shortage of horses and carts prevented the Borough Engineer from emptying receptacles for refuse as often as an efficient public health service demands. It is to be hoped that the change now in progress from horse-drawn vehicles, provided by a contractor, to our own motor vehicles will effect considerable improvement. We must not rest content, however, until all refuse is collected at least once every ten days, and during the summer every week; there is no doubt that the high diarrhoeal death-rate amongst Bootle infants is associated with our large, infrequently emptied ashpits, which are the breeding places of hordes of flies. No action has yet been taken under the Bootle Order, 1914, which enables the Corporation to contribute an amount not exceeding half the cost of substituting a moveable ashbin for a fixed ashpit, which has been reported in writing by the Medical Officer of Health to be, by virtue of its situation, prejudicial to health. Steps should be taken to deal at once with the ashpits in the Derby-road district, some of them under bedrooms, which were reported for conversion in 1914; and subsequently with all ashpits within a few feet of a dwelling house. During the past 5 years, 81 ashbins have been substituted for ashpits as a result of voluntary action on the part of the owners.

15. An important measure to prevent the breeding of flies would be to require the complete emptying of all receptacles for horse manure at least once a week during the summer months. In some towns this is done gratis by the Corporation.

16. Another important recommendation I have to make on this subject is that the use of the Fernhill Road Tip for the deposit of ashpit and other objectionable refuse should not be allowed to continue for a single day longer than is essential. A new refuse destructor has been needed for some years, the present one can burn only about 50 per cent. of the amount collected, with the result that thousands of tons of ashpit refuse have been tipped, during the past 4 years, within two hundred yards of a residential area and on land which will probably itself be required, within the course of the next few years, as a site for dwelling houses. Apart from the ashpit refuse tipped by the Corporation, a considerable quantity of trade refuse, some of an objectionable character, has also been tipped on an adjoining site. It appears to be impossible

to prevent tips from becoming afire; these have been smouldering for some months, and serious complaints have been received from the occupiers of neighbouring houses.

SANITARY INSPECTION OF THE DISTRICT.

17. A statistical summary relating to the work of the Inspector of Nuisances will be found in appendix 7 (page 75). The number of complaints from inhabitants continues to increase, being 1,710 compared with 1,148 in 1918 and 985 in 1917. Altogether 3,490 inspections of private dwelling houses were made during the year, as a result of which 2,496 defects were discovered. One thousand eight hundred and sixty-four informal notices were served on owners, 137 on occupiers; no action having been taken by owners in 719 instances and by occupiers in 5 instances, statutory notices were served in each case, and in all save nine where prosecution was necessary, the defects were remedied, though in some cases only after further representations had been made to the persons in default. In each case an order for the abatement of the nuisance was made but no fine was inflicted; the costs paid by the defendants amounted to £3 6s. 6d.

SUPERVISION OF PREMISES AND OCCUPATIONS WHICH CAN BE CONTROLLED BY BYE-LAWS OR REGULATIONS.

18. (a) *Sublet Houses*.—In July, 1918, there were known to be, as a result of examining applications for ration cards, 1,500 houses occupied by more than one family. The number is considerably greater now, but only 434 houses are on the sublet house register. There are bye-laws in operation for the control of these houses, and further powers have been sanctioned by the Housing, Town Planning, etc., Act, 1919, but if drastic steps are taken to require structural alterations, it will result in the eviction of many sub-tenants who are, in some cases, only allowed to occupy one or two rooms on sufferance, though instances are by no means lacking of cases where the rent charged is exorbitant (see also page 68).

19. (b) *Common Lodging Houses*.—There are 3 common lodging houses in the town, they are registered to accommodate 105 lodgers. Throughout the year they were all full.

20. (c) *Offensive Trades*.—The following are the offensive trades carried out in the town:—Tannerics 2, Fat Melter 1, Bone Boiler 1, and Rag and Bone Dealers 4. They were kept under close supervision throughout the year.

21. (d) *Underground Sleeping Rooms*.—There are no underground sleeping rooms which call for action under the Housing, Town Planning, etc., Act, 1909.

22. (e) Particulars of inspections made under the Factory and Workshops Act will be found in appendix 8 (page 78).

OTHER SANITARY CONDITIONS REQUIRING NOTICE.

23. Special attention has been given during the year to the ventilation and cleanliness of picturedromes and certain improvements have been effected.

A serious nuisance has been caused by the emission of sulphuretted hydrogen from the sulphate works established in August on the Liverpool Gas Company's estate in Litherland Road. Steps have been taken to prevent its further emission, but occasionally even yet there is a recurrence and other measures may become necessary.

As a result of the serious nuisance caused by the emission of smoke from motor wagons, steps were taken in conjunction with the police to bring the chief offenders before the Magistrates. During the last five months of the year 10 were summoned, and were mulcted to the extent of £9 10s.

SCHOOLS.

24. The schools are regularly inspected, and several minor sanitary defects were discovered and rectified. The Medical Officer of Health is the School Medical Officer, and full details of the work of inspection of schools and scholars and of action taken to limit the spread of infectious diseases in the schools will be found in his report to the Local Education Authority.

The following is the list of school closures required by the Sanitary Authority :—

School.	Department.	Disease.	Dates of closure.
Salisbury Road Council.	Infants'.	Measles.	19/11/19 to 1/12/19.
Gray Street Councel.	Infants'.	Measles and Scarlet Fever.	3/12/19 to 12/1/20.

FOOD.

25. *Milk Supply.*—The number of cows kept in the Borough continues to decline, being 328 in January, 361 in April, 344 in July, and 324 in October, while in January, 1920, it was 317. The usual number before the war was 550. The cows were examined quarterly by the Veterinary Inspector, who found that 9 cows were suffering from acute mastitis. He reported 18 cows with chronic induration or hypertrophy of the udder, 9 with atrophy of the udder, and 22 of injured teats or udders. It is possible, however, that the same cow may be counted in more than one quarter. The Veterinary Inspector reports that there was no evidence of tuberculosis in any of the cows examined, and that the general condition of the cattle is improving. There are 35 dairies and 27 shippers in the town, and to them the Food Inspector paid 682 visits. It was frequently necessary for the Food Inspector to call the attention of the dairyman to his failure to keep the milk covered.

Statistics were obtained of the amount of milk sold in Bootle during the last three weeks of the year, as compared with the corresponding period of 1918 : they show a weekly reduction of 3,170 gallons ; this is probably due to the increased cost of 1d. to 2d. a quart, causing many adults to use condensed milk, and the Infant Welfare Visitors noted an increased use of dried milk for infant feeding. Rather less than one-third of the milk consumed in the town is produced in the Borough, the remainder being rail-borne ; the proportion of railway milk is increasing.

Following on a circular issued to Bootle milk producers or sellers on the need for clean milk, six samples of milk, three produced in

Bootle, three rail-borne, were taken in December for bacteriological examination: the results are as under:—

BOOTLE MILK—

		Number of germs per cubic centimetre.	Colon bacillus present in :—	Tubercle Bacilli.
Sample 1	...	Uncountable in a dilution of 1 in a million.	0.1 cubic centimetre.	Absent.
„ 2	...	176,000,000	0.1 cubic centimetre.	Absent.
„ 3	...	232,000,000	Absent in 1 cubic centimetre.	Absent.

RAILWAY MILK—

„ 4	...	560,000,000	0.01 cubic centimetre.	Present.
„ 5	...	264,000,000	0.1 cubic centimetre.	Absent.
„ 6	...	Uncountable in a dilution of 1 in a million.	0.1 cubic centimetre.	Absent.

These results throw a lurid light on the nature of the "loose" milk (as distinct from bottled milk) which is sold in this country. The milk which contained five hundred and sixty million germs in one cubic centimetre (16 drops), the colon bacillus (an evidence of filth contamination) in one-hundredth of a cubic centimetre, and also the tubercle bacillus may quite literally be described as *poison*, the definition of which is "any agent capable of producing a morbid, noxious, dangerous, or deadly effect upon the animal economy." In this connection it should be remarked that in New York and other American cities, where the serious effects of dirty milk on the public health were recognised some years ago, all milk must now be graded. Grade 'A' (suitable for an infant's diet) must never contain more than 200,000 germs per cubic centimetre before Pasteurisation, or 30,000 at any time after being Pasteurised. Grade 'B' (suitable for the use of adults) must not contain more than 100,000 at any time after Pasteurisation, nor 1,500,000 before Pasteurisation, if Pasteurised in the City,) or 300,000 if Pasteurised outside. Grades 'A' and 'B' are bottled milks.

Grade 'C,' which corresponds to the bulk of our milk, is sold "for cooking only."

At present in New York one-seventh of the total supply is Grade 'A,' six-sevenths Grade 'B,' and none Grade 'C.'

Clean milk costs more than dirty milk, and not only must the farmer be taught how to produce it, but the public needs to realise that dirty milk is dear at any price. Only 34 farms in the whole of the country had up to 30th November, 1919, qualified for permission to sell "certified milk," for which an enhanced price could be charged. It is to be hoped that the Milk and Dairies Act, which has been under discussion in some form already for over seven years, will, without a further considerable delay, be brought into operation, and that it be so amended that the production of clean milk be made compulsory. It does seem anomalous that so much stress is rightly laid on the addition to milk of water which is comparatively innocuous, while the addition of manure, which is highly dangerous, should receive such scant consideration.

As an instance of the futility, without further powers, of endeavouring to deal with tuberculous milk, the history of the steps taken with regard to the tuberculous sample No. 4 may be given. Firstly, it should be pointed out that it is some five weeks before the bacteriologist can certify the presence or absence of the tubercle bacillus, and the attention of the Medical Research Committee has been drawn to the urgent need of elaborating some test by which tuberculous milk can be examined and reported upon within a few days. Sample 4 might have come, the wholesaler informed us, from one of twenty-three farms; the milk from each was therefore sent for examination; five weeks later came the result, and a farm near Preston was ascertained to be sending tuberculous milk. Acting on special powers given in our 1899 Act (the "Model Milk Clauses"), our Veterinary Inspector visited the farm and discovered a cow which he suspected to be tuberculous. We forbade the sending of milk from this cow into the Borough, and urged the farmer to have the beast slaughtered. If he had kept the cow, the difficulty of ascertaining whether he really had stopped sending her milk to Bootle can be imagined, but he saved us apprehension on the point by selling the animal to a neighbour, who sends the milk perhaps to

Bootle, perhaps to some adjoining district. Had the Tuberculosis Orders of 1913 and 1914 been put into operation at the conclusion of hostilities with the celerity with which they were cancelled (6th August, 1914) at their commencement, the animal could have been sent for slaughter, and possible infection of one or more children with tuberculosis prevented.

It is not sufficiently realised that from 5 to 10 per cent. of the milk sold in our large towns contains the living germs of consumption.

26. *Public Health (Milk and Cream) Regulations, 1912 and 1917.*—One hundred and nine samples of milk were examined for preservatives; none was found. As the sale of cream, during the greater part of the year, was restricted to those holding a permit, no sample was taken for analysis.

27. *Milk (Mothers and Children) Order, 1918.*—This order, which empowers the Corporation to supply milk to necessitous nursing or expectant mothers and to bottle-fed babies, continues to be administered successfully by the Bootle Health Society. They had been doing this work for eleven years before the issue of the Order. The Maternity and Child Welfare Committee have fixed an income limit as a guide to the Society, but their Honorary Secretary has been authorised to use her discretion when dealing with cases just above the limit. The actual cost of the milk supplied is refunded to the Society by the Corporation. There has been a considerable increase in the number of applicants, and the great majority were deemed worthy of assistance. The value of the milk supplied was £137, £34 of which was given in the form of dried milk. The number of families assisted was 106, compared with 28 families in 1918 at a cost of £33. During the year it was arranged with the Clerk to the Board of Guardians that we would not assist families who were receiving out-door relief, as the Guardians undertook themselves to provide dried milk in these cases; this arrangement did not, however, come into operation until November, since then the amount expended by the Corporation on this form of relief has been reduced considerably.

28. *Foods other than Milk.*—The food shops in the town are:—butchers 62, grocers 161, fish 60, fruit and vegetables 102, bread and flour 218.

There are also 9 food factories; 4,344 visits were paid to the food shops and 292 to the food factories. The amount of unsound food destroyed under the supervision of the Food Inspector was $12\frac{1}{2}$ tons, consisting of:—

	Tons.	cwts.	qrs.	stones.	lbs.
Meat	... ... 5	18	1	1	$4\frac{1}{2}$
Fruit and Vegetables	4	8	5	1	$5\frac{1}{2}$
Condensed Milk	... 1	18	2	0	$6\frac{1}{2}$
Fish	... ...	2	1	0	4
Miscellaneous	...	2	0	0	$2\frac{1}{2}$

The whole of the fresh food condemned in 1919 was surrendered because of decomposition with the exception of $50\frac{1}{2}$ lbs. of tuberculous meat, 36 lbs. cystic meat, 70 lbs. black quarter beef, and $3\frac{1}{2}$ lbs. bruised meat. The whole of the canned food surrendered was "blown." The miscellaneous articles included 1 cwt. 2 qrs. 1 lb. of jam, 1 qr. 9 lbs. of butter, 1 stone $2\frac{1}{2}$ lbs. eggs, and 4 lbs. of cheese.

It was all voluntarily surrendered by the owners, and there was no prosecution during the year.

There is only one slaughter house in the Borough, and during 1919 it was used on only 4 occasions, 48 sheep being killed.

The Corporation consider that all premises where food is preserved or prepared should be registered by them, and that they should have power to refuse the registration of unsuitable premises. In a Bill now before Parliament it is sought to obtain this power.

There are 34 bakehouses (13 being underground), and 20 confectionery bakehouses; their general condition on the whole is good. One hundred and ninety-four visits to bakehouses were paid during the year.

29. *Sale of Food and Drugs Acts.*—The Public Analyst is Mr. W. H. Roberts, M.Sc., F.I.C. Table 9 in the appendix (page 81) shows that 201 samples were taken, 109 of which were of milk. Altogether 32 samples, or 17.9 per cent., were reported to be adulterated or not up to the standard. With 11 exceptions, all the samples of milk were

obtained in accordance with the procedure prescribed by the Aets, but 88 of the other samples were taken informally. This is necessary because the amount required for analysis after the sub-division of the sample into three parts is often larger than that usually purchased by the ordinary customer of a small shop. Small quantities purchased by an agent are sent for analysis, and thus a knowledge is obtained of any adulteration which is being practised.

The results of the analyses of informal samples are telephoned by the Public Analyst as soon as they are available, and a formal sample is purchased immediately if the informal one was adulterated.

Twenty-two of the milk samples, or 20 per cent., were not up to the standard prescribed by the regulations of the Board of Agriculture. These include 7, or 6.4 per cent., in which the deviation from the standard was marked. The corresponding percentages in 1918 were 22.0 and 17.8.

In two cases of minor deficiencies of cream and thirteen in which the non-fatty solids were slightly deficient, the vendors were warned, and advised to have their milk privately analysed at regular intervals, in order that the influence of change of food, hours of milking, etc., might be determined, and unsatisfactory cows disposed of.

In four cases the analyst certified that the milk had been deprived of 17, 11, 8 and 6 per cent. of its cream respectively. It appeared from the analyst's report on one sample that it contained 12 per cent. of added water. Two others were deficient both in cream and in non-fatty solids, one being certified to be 14 per cent. deficient in fat, and to contain 5 per cent. of added water and the other was 5 per cent. deficient in fat and contained 7 per cent. of added water. Owing to the present unsatisfactory state of the law with regard to milk standards, three only of the seven vendors of milk markedly below the standards fixed by the Board of Agriculture were fined: in these three cases the total amount of the fines and costs was £11 14s. 0d.; one of the cases was withdrawn on payment of the analyst's fee of one guinea, and the three other defendants were ordered to pay costs amounting altogether to £3 7s. 6d.

Nineteen samples of milk were taken at railway stations in the town and were all certified to be genuine. The Public Analyst has kindly supplied me with particulars of the result of the analysis of every

sample of milk submitted to him from Bootle; including the samples returned as "not genuine" the average amount of cream was 3.66 per cent. and of non-fatty solids 8.74 per cent. The limits fixed by the Board of Agriculture are 3 per cent. fat and 8.5 per cent. non-fatty solids.

Eight samples of dripping were purchased, two were genuine; three were procured informally, and found to be adulterated. A formal sample was then purchased from each of the three vendors, and they were found to contain 45, 45, and 50 per cent. respectively of cotton seed oil, and a fine of 20s. and the Analyst's fee of 10s. 6d. was inflicted in each case. The vendor of one of the genuine samples was mulcted in a penalty of 20s. for charging 6d. per pound above the maximum price prescribed by the Home Melt Tallow and Grease (Maximum Prices) Order, 1918.

Nine samples of margarine were purchased, all of which were genuine; three of the samples were not enclosed in a paper wrapper on which was printed "MARGARINE." One of the vendors was fined 20s. and the other two 15s. each.

Three samples of vinegar were reported to be not up to the standard, containing respectively 2.5, 3.4, and 3.8 per cent. of acetic acid instead of 4 per cent. One of the samples of rice was reported to contain 0.8 per cent. of talc. The vendors of these were cautioned.

WORK FOR THE FOOD CONTROL COMMITTEE.

30. Throughout the year such assistance as was desired was given to the Food Control Committee. The Inspectors in their visits to food shops ascertained that controlled prices were not exceeded, and they investigated any complaint of over-charging. As mentioned above, there was a successful prosecution for making an overcharge for dripping.

The staff of the Health Department administered the Regulations of the Ministry of Food relative to the issue of extra rations to invalids and of emergency rations to newly-born infants; 829 of these emergency rations were granted; also 100 priority certificates for milk and extra rations for 62 invalids. This is apart from the supply of extra sugar to babies attending the infant consultations.

PREVALENCE OF AND CONTROL OVER INFECTIOUS
DISEASES.

31. *Zymotic Diseases*.—During the year there were 79 deaths from the seven principal zymotic diseases, which are smallpox, measles, whooping-cough, diphtheria, scarlet fever, diarrhoea, and fever (including typhoid, enteric, and typhus). This is a death-rate of 1.03 per 1,000 of the population, and is by far the lowest ever recorded; it compares with a decennial rate for 1909-1918 of 2.24. The rate for 1918 was 1.8 and for 1917 1.69. The number of deaths from zymotic diseases during the past 11 years is shown in table 10 (page 82).

The number of cases of infectious diseases notified during the year is given in Table 2 (page 71). There was no notification of cholera, plague, dysentery, typhus fever, relapsing or continued fever, or poliomyelitis.

32. *Scarlet Fever*.—Three hundred and fifty-three cases were notified, being a rate of 4.6 per 1,000 of the civilian population, compared with 4.7 in 1918 and 2.76 during 1917. The number of notifications during the first and second quarters was about the normal; during the autumn there was an increased prevalence of the disease in the neighbouring district of Litherland, and within a few weeks it spread to Bootle. During the third quarter there were 107 notifications, and during the fourth quarter 171. The largest number of cases came from Linacre Ward, the ward incidence being—Linacre, 157; Knowsley, 55; Mersey 49; Derby, 43; Orrell, 28; Stanley, 21. The disease has not been so prevalent since the epidemic of 1908-9, and during the height of the outbreak, cases for admission to hospital had to be selected, though no *urgent* case either from Bootle or Litherland had to remain at home, and for all whose admission was desired, accommodation was found within generally a few hours, at most within two or three days. For many weeks the number of scarlet fever patients in the hospital exceeded 60. Fortunately the disease has not been so fatal as it was during 1918, when there were 22 deaths out of 344 cases notified. This year there were 8 deaths, giving a case-mortality of 2.3 per cent., compared with 6.5 per cent. last year, and 2.7 per cent. during the Decennium 1909-1918. The schools with the largest numbers of cases were Gray-street, 65; St. James', 35; and Salisbury Road, 22. Because of the prevalence

of this disease and of measles, the Infants' Department of Gray Street Council School was closed from December 3rd until after the Christmas holiday.

In every case an endeavour was made to discover the source of infection ; in 120 cases, or in 34.1 per cent., it was obvious, in 16 it was doubtful, and in 217 quite unknown.

During the year 17 "missed" cases were discovered. These are children who have the disease in a mild form which is unrecognised, and as a rule they are not discovered until someone else in the family has developed an attack, often severe, of scarlet fever ; then it transpires that the "missed case" had a sore throat and a slight rash two or three weeks before, and is at the time of discovery peeling profusely.

33. *Multiple Cases*.—In each of 41 families two cases of scarlet fever occurred ; in each of 3 families there were 3, in 3 families 4 cases, and in 3 other families 5 cases.

34. *Return Cases*.—The causes of "return cases" were discussed fully in my report for 1918. As almost invariably occurs when the wards of a hospital become full, the number of return cases has been considerable. Altogether there were 13 Bootle infecting cases, being 6.1 % of those discharged. Taking the hospital as a whole and including the Litherland and Formby cases, there were 15 infecting cases, being 4.9 % of those discharged. The percentages in former years have been—1918, 3.9 ; 1917, nil ; 1916, 1.9 ; 1915, 2.2 ; and 1914, 6.3. The average time in hospital of the infecting cases was 49.9 days, which is greater by some 20 days than the average period of treatment of the non-infecting cases. During the period of greatest pressure on the hospital accommodation the uncomplicated cases were discharged on the twenty-eighth day of the disease whether peeling had finished or not. From those discharged on this day there was no return case at all ; one infecting case spent 75 days in the hospital, others 65, 62, 57, 52, and 51 days ; it is obvious therefore that the retention of scarlatinal patients in hospital for long periods will not solve the "return case" problem. Four infecting cases had had no complication of a septic character while in the hospital, nor did they develop any complication on their return home ; in all the other cases there was discharge from nose or ear, either when in hospital or after return home. All the patients were free from

any discharge when leaving the hospital. Owing to the overcrowded condition of their homes, only three of the 15 infecting cases were able to sleep alone on their return there. It should be noted that although the usual incubation period of scarlet fever is five days, in the majority of these return cases over ten days had elapsed since the other member of the family returned home, pointing to the possibility of some undisinfected article being produced some five or more days after the child's release from hospital.

35. *Hospital Accommodation.*—71 per cent. of the cases notified were treated in hospital. As there is an undoubted tendency to send into hospital the cases which appear to be serious, the hospital mortality-rate of 2.4 per cent., compared with a mortality-rate of 1.8 per cent. amongst those nursed at home cannot be considered unsatisfactory.

The value of a fever hospital for the prevention of the spread of scarlet fever cannot be placed high, as most of the damage with regard to infection of others has probably been done before the patients' admission to hospital, but except when the wards are overcrowded a hospital is of decided advantage from the point of view of treatment, and the prevention of complications which, in this disease, may incapacitate the sufferer for life. The same remarks apply even in times when the hospital is full, though there is undoubtedly then, even with the best available nursing, an increased tendency to suppurative complications.

36. *Diphtheria.*—The number of cases continues to increase year by year. There were 168 notifications during 1919, compared with 123 in 1918, 94 in 1917, and an average for the 10 years ended 1918 of 73. The incidence was 2.2 per 1,000 of the civilian population; there were 59 cases in Linacre Ward and 38 in Derby Ward. There were 16 deaths compared with 21 last year, there being a comparatively low case-mortality of 9.5 per cent. of all patients notified, compared with 17.1 per cent. in 1918, and 13.8 in 1917. There were removed to hospital 127, or 75 per cent., of those notified.

Vincent's Angina, a disease clinically like diphtheria, but readily distinguished bacteriologically, is still prevalent; seven cases sent into hospital turned out to be suffering from it. The death-rate from diphtheria per 1,000 of the civilian population was 0.21, compared with 0.13

throughout England and Wales. One hundred and twelve throat swabs were sent in by private practitioners, and in 31 the diphtheria germs were found. It is somewhat unusual for private doctors to take swabs during convalescence, in order to ascertain whether or not the patient has become a chronic carrier, but I am glad to say that a few do so.

In 48 houses in which a case of diphtheria had occurred, some sanitary defect, usually of a minor character, was found. The infection in diphtheria is conveyed from person to person, and defects in drainage, although they may predispose to the disease, cannot cause it. Multiple cases are becoming more common, two cases occurred in each of 10 families, 3 in three families, and 4 in one family.

Anti-toxin for diphtheria patients nursed at home is kept at the Hospital, and during 1919 80,000 units were given to doctors for the use of 14 of their patients.

37. *Smallpox*.—After an absence of 8 years, smallpox re-appeared in the town early in 1919. Eight cases were notified or discovered; details of the first seven cases, who were infected by a man who returned from Portugal with the disease late in December, 1918, are given in my last report. The eighth case was a ship's engineer, who had arrived, the day before notification, from the East, via Southampton. All persons recently arrived from Portugal were kept under observation whilst there was any risk of their developing smallpox. These persons were notified by the Port Sanitary Authority. Altogether 456 contacts of smallpox or persons who had come from a country where smallpox was prevalent, were kept under daily surveillance until all risk of their developing the disease had gone. The eight patients were removed to the New Ferry Hospital of the Port Sanitary Authority, where all recovered; the average period of treatment being 42 days.

According to information kindly supplied to me by the Clerk of the West Derby Union there were during the year 1919 only 975 successful primary vaccinations, being 51 per cent. of the births registered, and 91 successful re-vaccinations. It is deplorable that so many parents are so foolish as to neglect to provide for their children the only effective safeguard against infection.

As the Public Vaccinator was readily available it was unnecessary for the Medical Officer of Health to exercise his powers under the Public Health (Smallpox Prevention) Regulations, 1917.

38. *Enteric Fever*.—There were 5 notifications of enteric fever; three of the patients were admitted to the Corporation Hospital; one was notified from the Walton Institution, where he remained; and one was nursed at home. All recovered. One patient contracted the disease (Paratyphoid B) through nursing her sister who was suffering from it in Birkenhead, and another was probably infected on a ship. In the other three the source of infection could not be traced. The diagnosis was confirmed bacteriologically in the three cases treated at the Linacre Hospital, and before their discharge it was ascertained that they were not carriers of the typhoid organism.

39. *Measles*.—During 1919 measles caused 12 deaths, compared with 8 in 1918, 27 in 1917, 17 in 1916, and an average of 31 during the 10 years ended 1918. The death-rate in Bootle was 0.16 per 1,000 of the population, compared with 0.1 throughout England and Wales. The numbers of notifications received were:—Measles, 426; German measles, 29; the total being 455, compared with 680 in 1918, 1,163 in 1917, and 1,410 in 1916. Three hundred and seventy-one notifications were received from doctors and 84 from parents, but many parents only sent in the notification when instructed to do so by the Infant Welfare Visitor or School Attendance Officer, who had happened across the case. It was usual for measles to recur in epidemic form every second or third year, but there has not been any extensive outbreak in Bootle since 1912, when it caused 62 deaths.

Measles is now no longer compulsorily notifiable, and information is not being received of cases in young children of families where no-one attends school; school children suffering from the disease are notified by the teacher, but such children almost invariably have a mild attack. It is concerning the very children—the young babies for whom much ought to be done—that we now have no information until in many cases the death is registered. Six cases, complicated by pneumonia, were nursed by the District Nurses, and all recovered. No child was admitted to hospital, either Linacre or Walton, with the disease, but two of the deaths occurred at the Walton Institution and one at that in Belmont Road, of children who had been resident there for some time.

40. *Whooping Cough*.—Whooping Cough caused only 2 deaths during 1919, compared with 25 during 1918, 32 in 1917, 19 in 1916, and 57 in 1915. The death-rate was 0.03 per 1,000 of the population compared with 0.07 throughout England and Wales.

41. *Cerebro-Spinal Fever*.—One notification only was received; it related to a man aged 22 years. He was first sent into a Poor Law Infirmary as a case of mania, but, on the correct diagnosis being made, was transferred to the David Lewis' Northern Hospital, where he died. The disease was confirmed bacteriologically. Post-nasal swabs were taken from 12 contacts, but all were found to be negative.

Lumbar puncture will be performed in any suspected case of this disease, and the spinal fluid bacteriologically examined. A supply of serum is kept at the hospital, and will be issued to any medical practitioner requiring it for a patient resident in Bootle.

42. *Acute Poliomyelitis and Acute Polio Encephalitis*.—There was no notification of either of these diseases.

43. *Encephalitis Lethargica*.—One case of this disease was notified, a man aged 58 years. Now, a year after the attack, he is still weak, and unable to attend to his business.

44. *Erysipelas*.—Nineteen notifications of this disease were received, there was no death. One fatal case, at first thought to be erysipelas, occurred in a dock labourer, aged 55 years; it subsequently turned out to be a case of anthrax.

45. *Influenza*.—There was another wave of influenza in February and March; throughout the year there were 116 deaths. The deaths week by week during the first quarter of the year were 5, 1, 2, 1, 1, 5, 8, 23, 29, 16, 13, 3, and 2; total 109. Acute influenzal pneumonia became compulsorily notifiable on 1st March, 1919, and from then until the end of the year 55 notifications were received, 42 being in the remaining four weeks of the first quarter. Full details were obtained of all the notified cases; in 57 per cent. the onset was sudden, in 25 cases there was more than one case in the family, and in 9 the patient had had a previous attack of influenza. Six of the notified cases were fatal.

46. *Pneumonia*.—This disease caused 171 deaths, or 2.2 per 1,000 of the civilian population, compared with 3.14 in 1918, and 2.22 in 1917. Thirty-six notifications of acute primary pneumonia were received after it became notifiable on the 1st March. The services of the District Nurses were offered in all these cases as in those of influenzal-pneumonia. They were accepted in twelve, of whom nine recovered.

47. *Trench Fever*.—Only one notification was received, a relapsing case in an ex-soldier. This disease is spread by lice: there were none at his home, so there was no risk of conveying infection to his family. Disinfection was carried out, however, as a precaution.

48. *Malaria*.—There were eight notifications; they all related to ex-soldiers who had contracted the disease abroad. Anopheline mosquitoes which convey malaria from person to person have been found as near to Bootle as Hightown, but no indigenous case of malaria has been notified in this district.

49. *Plague and Rat Destruction*.—There was no plague in Bootle, either human or rodent, but rat destruction received considerable prominence as a result of the national campaign against the rat because of the enormous amount of damage and destruction which he causes.

Mr. William Borrows is the official Rat Catcher, and during the year he brought 2,537 rats for destruction; in addition he laid a large number of poison baits. There were three "rat weeks," namely, October 19th to 25th, October 27th to November 1st, and December 29th to January 3rd, 1920. During the first rat week a penny was offered for every rat brought to the Corporation Destructor, but this inducement was not sufficient, and the sum was in consequence raised to 6d. per rat in the subsequent weeks. The number of rats brought by private individuals during the weeks were 4, 217, and 29. Twenty-four rats from warehouses and sewers were sent for bacteriological examination, but no evidence of plague was found.

Notices have been printed and distributed broadcast explaining the provisions of the Rats and Mice (Destruction) Act, 1919, namely:—"Any person who shall fail to take such steps as may from time to time be necessary and reasonably practicable for the destruction of rats and mice on or in any land of which he is the occupier, or for preventing

such land from becoming infested with rats and mice, shall be liable on summary conviction to a fine not exceeding FIVE POUNDS, or where he has been served with a Notice under this Act requiring him to take such steps, not exceeding TWENTY POUNDS."

50. *Diarrhaa*.—The deaths from this disease numbered 41, which is a rate of 0.53 per 1,000 of the civilian population, compared with 0.7 last year. The epidemic form of the disease generally occurs in children under two years of age. The death-rate in children under that age per 1,000 births throughout England and Wales was 9.59, and in the 96 "great towns" 12.24, compared with a rate in Bootle of 18.8. Cases of this disease were again notifiable voluntarily during the third quarter of the year. There were only 11 notifications compared with 65 in 1918, and 32 in 1917. This is unfortunate, as arrangements had been made for cases, likely to be benefited, to be treated by the District Nurses by rectal injections. The few cases notified were practically all of a mild type, and had almost recovered before the Infant Welfare Visitor had paid her first visit.

There were 36 deaths of children under the age of 2 years, and enquiry was made into the circumstances attending each. The outstanding feature of the enquiries was that in the large majority of the cases the infant's food was insufficiently protected from dust and flies, generally owing to lack of accommodation for the storage of food. In all cases the duration of the illness was under one week. In this connection it has unfortunately been noticed that long tube bottles are again coming into use. As it is impossible to keep them clean they are a potent cause of diarrhoea.

CONTAGIOUS DISEASES OF ANIMALS ACTS.

51. *Parasitic Mange*.—During the year 18 cases of the disease were reported compared with 22 in 1918. One hundred and thirty-two visits were paid to the 11 premises in which the horses were stabled. Considerable attention was devoted to these outbreaks, and statistics covering a period of years demonstrate the impossibility of disinfecting thoroughly the cracks and crannies of many of the old wooden stables in which some of these cases have occurred. There are in the town 164 brick stables housing 858 horses and 28 wooden stables containing 109 horses. In the past eight years there have been 47 cases of parasitic mange in

the wooden stables and 72 in the brick, giving an incidence rate of 5.4 per cent. per annum in the wooden compared with only 1.05 in the brick. In consequence of this, the Corporation are now endeavouring to obtain power to destroy compulsorily those portions of wooden stables which are certified to be incapable of thorough disinfection.

52. *Pigs.*—There are 16 pigstyes containing 206 pigs. They are regularly visited; there was no swine fever.

DISEASES CONTRIBUTING LARGEY TO THE DEATH-RATE.

53. *Cancer.*—During the year there were 80 deaths or 1.04 per 1,000 of civilian population, compared with 0.9 per 1,000 in 1918, and 1.1 per 1,000 in 1917. Leaflets have been distributed widely describing the first stages of cancer in its commoner locations, and recommending that medical advice be sought on the first appearance of any suggestive sign or symptom. Arrangements have been made for specimens from suspected cases of cancer to be examined and reported upon by Prof. E. E. Glynn at the cost of the Corporation.

54. *Bronchitis.*—Bronchitis caused 88 deaths, being a death-rate of 1.14 per 1,000 of the civilian population compared with 1.33 in 1918, and 2.02 in 1917. It is possible that the reduction in the number of deaths from this disease is due to transfer to pneumonia as a registered cause of death.

55. *Heart Disease.*—This disease caused 73 deaths. The ultimate cause of many of these deaths was rheumatism.

TUBERCULOSIS.

56. The number of deaths caused by tuberculosis during 1919 was 110 or one death in every 10. The death rate was 1.43 per 1,000 of the civilian population, but as men who suffer from tuberculosis, in the majority of cases, are discharged from the services before their death, the death-rate should be worked upon the total population: it is then 1.37 per 1,000 compared with 1.99 in 1918, 1.97 in 1917, and 2.3 in 1916. It is the lowest rate ever recorded in the Borough; it was 1.86 for the decennium ended 1918 and 1.83 for that ended 1908.

57. *Pulmonary Tuberculosis.*—During the year 80 deaths were certified to be due to pulmonary tuberculosis, representing a rate of 0.99 per 1,000 of the total population. This also is the lowest rate ever recorded in Bootle, and it is very gratifying that at last the rate has fallen below 1 per 1,000. The maximum rate previously recorded, viz., 1.95 per 1,000, was in the year 1916, and the lowest, 1.08, in 1898. During the past five years war conditions, including the influenza epidemics, have been responsible for increased numbers of deaths, and by eliminating certain sufferers may have contributed to the lower rate now obtaining. We cannot yet be said to have reached normal conditions of life, so that it is impossible to state how post-war conditions will react on the population as regards their liability to tuberculosis. It should also be remembered that the figures for any one year cannot be taken as typical, as the element of chance is responsible for certain fluctuations year by year.

58. *Notification.*—One hundred and fifty persons were notified as suffering from pulmonary tuberculosis, of whom 33 were ex-service men: their age and sex distribution will be found in appendix 12 (page 83). The numbers notified in the three preceding years were 176, 205, and 234 respectively, so that the incidence of new cases appears to be declining in a manner similar to the numbers of deaths. Information in respect of 34 cases was first obtained from the death returns, while 14 others were notified less than three months before the fatal termination of the illness. It will thus be seen that information in regard to more than half the fatal cases was received too late for us to take any effective steps, either to ameliorate the condition of the patient himself or to prevent him communicating his disease to those around him. Various explanations of this failure in our work are advanced. That some medical men fail to observe their statutory duty is clear, but the main cause is undoubtedly in the patient himself and the character of the disease. Unfortunately the onset is not heralded by any grave symptoms which alarm the patient. From good or moderate health he retrogresses steadily until, often, only when he reaches the third stage does he consult a doctor. During the whole time, which may extend over a year or two, he is but vaguely conscious of the impending disaster, and seeks assistance only when finally compelled to give up work. How little the patient himself appreciates the situation is shown by the fact that often he fully expects after a month's stay in a sanatorium to be restored to perfectly robust health. It would be advisable, in any amend-

ment of the regulations relating to the notification of tuberculosis, to require *every* doctor who is consulted by a tuberculous patient to notify him, independently of whether he has reason to believe that the case has already been notified by another doctor.

59. *Tuberculosis Dispensary*.—Three hundred and thirty-three new patients were examined at the Dispensary during the year. Fifty-one were sent by private practitioners for an opinion. Of these 21 were found to be definitely suffering from the disease, 15 were regarded as doubtful, and were kept under observation, and in the remaining 15 no positive indication of tuberculosis could be found. It is hoped that practitioners will avail themselves to an increasing extent of the services of the Dispensary Staff. The arrangement of the duties permits the Tuberculosis Officer to devote more time to the examination in surroundings more favourable to procuring accurate results than can often be obtained by private practitioners in the homes of the patients. A visit to the dispensary is also a factor in the campaign of education against tuberculosis, as his attention is directed there to the prevalence and dangers of the disease.

Of the 333 new patients 158 were diagnosed as suffering from tuberculosis; 121 were kept under observation, and 54 were found to present no symptom or sign of the disease. Ninety-one of these new patients were insured persons, and 242 uninsured.

60. *Examination of Contacts*.—With the object of discovering the disease in its earliest phase or of giving advice with a view to preventing its development, relations and associates of known cases are examined where possible. One hundred and thirty-three of these contacts were so examined, with the result that 12 were found to be already suffering from tuberculosis, and 30 others were so debilitated or presented such evidence as made further observation desirable. The remainder appeared to be perfectly healthy.

61. *Attendances*.—The total attendances at the Dispensary during the year numbered 7,468, representing an average of 25 attendances for each half working day. In 1918 the attendances numbered 8,119.

Three hundred specimens of sputum were examined, giving a positive result in 64 cases.

62. *Work of the Tuberculosis Nurse and Visitor.*—At the beginning of the year 884 persons suffering from or suspected to be suffering from phthisis were living in Bootle. During the year 184 new cases were added, making a total of 1,068 persons who were visited in their homes during the year. Of these 80 died; at the end of the year 72 were in institutions (42 in Poor Law Institutions, 12 in Maghull Sanatorium, 12 in Linacre Hospital, 2 in Convalescent Homes, and 4 in Voluntary General Hospitals), while 36 had left the district or could not be traced. Eight hundred and eighty persons remained on the visiting list at the end of the year. It should be noted that this number includes all persons notified in this or previous years, and many suspected cases found either in the schools or in the routine work of the Dispensary. They are by no means all suffering from definite tuberculosis, but any advice given as to measures to prevent tuberculosis is equally valuable to maintain good health in the healthy, so that work done in this direction has doubtless a considerable value. Six thousand one hundred and four visits were paid to the homes of the patients, and in 201 cases arrangements were made with the Sanitary Department for the disinfection of infected houses. The most important part of the work of the tuberculosis visitors is advising as to the best means of making arrangements in the homes with a view to improve the health of the sufferer and to prevent the infection of other members of the family.

How necessary such work is will be seen when it is stated that in 58 cases the patient shared a bed with one other person, in 20 with two other persons, and in 7 with three other persons. Particulars of the sleeping accommodation of the notified cases will be found in appendix 13 (page 84). At the same time it is clear that until a great improvement is effected in the housing accommodation in the town, undesirable conditions will remain and will be incapable of remedy. The work of the tuberculosis visitors has been estimated in America to represent 60 per cent. of the whole effort against tuberculosis, and my most cordial appreciation is due to the visitors in Bootle for the energy and tact with which they have performed their duties.

63. *Maghull Sanatorium.*—During the year 88 patients were admitted to the Maghull Sanatorium. For further information see appendix 14 (page 85). On the 31st December, 1918, there were 20 patients in residence, while there were 17 on the 31st December, 1919; the average length of stay was 84 days.

The prospect of any patient admitted to a sanatorium will obviously depend on his condition on admission. It is found as a matter of experience that the outlook is much better for the patients in the earlier stage of the disease and more particularly for those in whose sputum tubercle bacilli cannot be found. The following tables will indicate the result of treatment:—

TABLE I.

Condition at December, 1919, of Bootle patients treated since the opening of the Sanatorium in May, 1914, and discharged before September, 1918.

Condition on admission.		Condition at December, 1919.				
		Total.	At work.	Unable to work.	Dead.	Left District.
<i>a</i> Stage I.	<i>b</i> Sputum +	41	18	1	18	4
Stage I.	Sputum —	57	35	0	7	15
Stage II.	Sputum +	57	14	7	30	6
Stage II.	Sputum —	30	19	2	5	4
Stage III.	Sputum +	12	3	1	8	0
Stage III.	Sputum —	4	0	0	3	1
Totals		201	89	11	71	30

a Stage of disease.

b Sputum positive or negative.

The following table gives similar information in regard to the 48 patients treated during the year September, 1918, to September, 1919.

TABLE II.

Condition on admission.		Condition at December, 1919.				
		Total.	At work.	Unable to work.	Dead.	Left District.
Stage I.	Sputum +	15	8	6	0	1
Stage I.	Sputum —	18	13	2	0	3
Stage II.	Sputum +	8	3	4	0	1
Stage II.	Sputum —	5	4	1	0	0
Stage III.	Sputum +	2	1	0	0	1
Stage III.	Sputum —	0	0	0	0	0
Totals		48	29	13	0	6

Prior to the opening of the Sanatorium at Maghull in 1914, Bootle patients were treated at the Liverpool Sanatorium at Delamere.

The present condition and after history of the patients so treated is shewn, viz. :—

TABLE III.

Condition at December, 1919.

Condition on admission.	Total.	At work.	Unable to work.	Dead.	Left District.
All Stages. Sputum +	16	3	0	12	1
All Stages. Sputum —	6	6	0	0	0

From a study of the above tables it may be concluded :—that the disease is curable as is shewn by the facts that of 110 patients with positive sputum, that is, in whom no doubt in the matter of diagnosis existed, and who *prima facie* are unfavourable cases, 35 still remain at work 15 months at least after the date of discharge; that though some of these patients may still suffer relapse, it appears probable that in a certain number a permanent cure has been effected; and that of sixteen similar patients discharged from Delamere nearly six years ago, 3 are still at work, and appear permanently cured. The second salient feature is shewn in the numbers whom the sanatorium has failed to cure. Of the 201 patients treated between 1914 and 1918, 71 are already dead. The causes and the means of reducing this degree of failure, common to all institutions, are the subject of inquiry throughout the country. The main considerations would appear to be—

- (a) The difficulty of getting the patient in a sufficiently early stage of the disease;
- (b) The difficulty of getting the early case to regard his condition as sufficiently serious to require Sanatorium treatment;
- (c) The difficulty in persuading him to remain a sufficiently long period to effect a definite cure;
- (d) The difficulty of maintaining the Sanatorium conditions when he returns home.

The last mentioned difficulty it is proposed to meet by the establishment of farm or open-air colonies where the patient can work at his trade or at a more suitable occupation. That practically every patient improves during his stay in a sanatorium is patent to the most casual observer. It follows as a reasonable deduction that with a continuance of the conditions the improvement would be maintained and a cure effected. That many Sanatorium patients are unable to withstand the physical, and not less the mental strain, of competitive labour conditions is clear, and if the full advantage is to be reaped from the money expended on their care and treatment, a way should be found; by labour colonies or otherwise, of relieving these conditions.

64. *Linacre Hospital: Phthisis Pavilion.*—During the year 80 cases were received into the open-air ward of the Linacre Hospital. For further information see table 15 on page 85. There were 12 patients at the end of 1918 and 15 at the end of 1919. The average length of stay was 63 days. The new pavilion for the accommodation of an additional 28 patients is now approaching completion.

From the nature of the cases the results of treatment in the open-air ward at Linacre Hospital are naturally not so favourable. Certain of the patients are very ill on admission. Improved surroundings and nursing facilities generally result in great improvement, and the period of residence is for all, an education in the value of open air, and in the means of preventing the spread of infection. The following tables show the result of the work:—

TABLE IV.

Condition at December, 1919, of patients discharged before September, 1918.

Condition on admission.		Total.	At work.	Unable to work.	Dead.	Left District.
<i>a</i> Stage I.	<i>b</i> Sputum +					
Stage I.	Sputum —	41	27	2	8	4
Stage II.	Sputum +	90	8	5	71	6
Stage II.	Sputum —	45	16	5	18	6
Stage III.	Sputum +	82	1	3	77	1
Stage III.	Sputum —	13	2	2	7	2
Totals		299	59	17	202	21

a Stage of disease.

b Sputum positive or negative.

TABLE V.

The following table gives similar information regarding the 46 patients treated during the year September, 1918, to September, 1919—

Condition on admission.		Total.	At work.	Condition at December, 1919.			Left District.
<i>a</i> Stage I.	<i>b</i> Sputum +			Unable to work.	Dead.		
Stage I.	Sputum +	2	0	0	1	1	
Stage I.	Sputum —	5	3	0	2	0	
Stage II.	Sputum +	22	6	7	6	3	
Stage II.	Sputum —	7	3	2	1	1	
Stage III.	Sputum +	10	0	1	8	1	
Stage III.	Sputum —	0	0	0	0	0	
Totals		46	12	10	18	6	

a Stage of disease. *b* Sputum positive or negative.

Patients treated both at the Linaere Hospital and Maghull Sanatorium are counted with the statistics of the institution from which they were finally discharged.

Thirty-three ex-service patients came under treatment during 1919; 25 were admitted to institutions, and the other 8 received dispensary treatment. Separate figures are required for visits to their homes. For the twelve months ended 31st March, 1920, 650 visits were paid to the 104 ex-service patients who are or were under supervision.

SPECIAL REPORT BY THE TUBERCULOSIS OFFICER, DR. H. J. MILLIGAN.

65. *Review of the Tuberculosis Problem as it appears in Bootle.*—An enquiry, not yet completed, has been conducted during the year in regard to the general question of tuberculosis in Bootle. The basis has been information collected at the dispensary since its opening in 1912, and information gleaned from the death returns for the years 1915-1919 inclusive. Incidentally it may be mentioned that an enormous mass of information concerning tuberculosis must now be avail-

able throughout the country since the establishment of the dispensary system. It is hoped that means will be found to render this information available with a view to elucidating the problem. The main results of our enquiry may be indicated. (To avoid all question of uncertainty in diagnosis, only cases with positive sputum and persons dead of the disease have been considered).

(1) *Extent of Problem.*—There were 163 persons in Bootle in December, 1919, known to have or to have had tubercle bacilli in the sputum. In dealing with the question of notification above, it is shown that we are not brought into touch with anything like the total number of such cases. It is therefore estimated that there are 250 to 300 people in Bootle at any one time with tubercle bacilli in the sputum. This represents an incidence-rate of 3 to 4 per 1,000 of the population.

(2) *Age and Sex Incidence.*—Contrary to the general view, young people are not specially prone to the disease. Taking the death returns as the best guide, the maximum death-rate for males, 3.32 per 1,000, occurs at the age period 30-35, but the rate remains fairly constant up to age 55, when it is 3.18; there is then a gradual decline. The female rate, lower over all, shews two maxima, 2.75 per 1,000 at ages 25-30 and 3.04 at ages 45-50, but the general direction of the curve follows that of the males. In both sexes the incidence in children is distinctly low. These results are in general accord with the exhaustive inquiry conducted by Dr. Brownlee for the Committee of Medical Research.

(3) *Social Condition of People Attacked.*—As is generally known, the less fortunate classes of persons suffer most. Three lines of inquiry all gave the same indication, viz.:—The size of the house occupied; the average rate of income; and the occupations of affected persons.

(4) *Infectivity of the Disease.*—By various lines of inquiry an endeavour was made to ascertain how far cases of phthisis could be traced to antecedent cases. It was presumed that persons living in the same house with a known case of the disease were, if they developed the disease, infected by that case.

(a) Of the 163 persons in Bootle with positive sputum, 24 or 14 per cent. could be so traced, and of 588 people dead of phthisis between 1915-1919, 54 or 9 per cent. had an intimate association with an ante-

cedent case. Our knowledge of the history of the living cases is, I believe, very complete, that of the dead less complete, which fact probably accounts for the smaller figure in the latter group. In the two groups of cases of presumed infection, it is noteworthy that of the 24 cases of the living, 11 or 46 per cent., and of the 54 dead 19 or 35 per cent., had multiple cases, i.e., three or more, in association. Most frequently they were members of the same family. The deduction might reasonably be made that another factor than infection, viz., increased susceptibility from family history or otherwise, played an important part.

(b) *Conjugal Cases*.—If infection played an important role it would be assumed that the person who married a tuberculous partner would be in the gravest danger of contracting the disease. That some danger exists will be seen from the following figures. Of our 163 positive cases, 84 were married persons; in 2 cases the other partner was known to be suffering from or to be dead of the disease. Of the 588 persons dead of phthisis 263 were married persons, in 8 cases the other partner suffered from or died of phthisis. Though the number of cases of apparent infection is small, it is 10 times the expected incidence in people of marriageable age, and as a rule no question of hereditary predisposition enters in.

(c) *House Infection*.—Of 588 dead of tuberculosis, in 32 instances a previous case of the disease had occurred in the same house. This has regard to house association only, and excludes cases where previous association with another case is traceable. Seven of these occurred in model lodging houses. In this connection, as a matter of interest, dust was allowed to accumulate at the dispensary, and was later submitted to inoculation tests for the tubercle bacillus. The result was negative. It is not desired to attach too much importance to this latter experiment, but the general impression gained from the inquiry was that house association did not play an important part.

(d) The apparent immunity of staffs of tuberculosis dispensaries and chest hospitals might be mentioned.

Period of Incubation.—This part of the inquiry is not yet complete, but the indications at present are that the secondary cases appear on the average within a comparatively short time. They occur in a definitely recognisable form commonly within the life of the presumed infect-

ing case, and are not often delayed beyond 2 to 3 years of the death of such a case. There is not much evidence amongst our associated cases for the very extended latent period frequently presumed.

As a check on our results, the inquiry is being continued to find how frequently cases of glandular or bone disease, which appear patently non-infective, are to be found in different members of the same family. Information on this point would help to decide the question whether associated cases of phthisis so far from infecting each other may not have had a common source of infection, perhaps at a much earlier age.

Conclusions.—(1) That infection plays a part would appear clear, especially from the evidence of conjugal cases. Further, from the known fact that the tubercle bacillus causes the disease, it would be folly not to admit that it might be conveyed, whether by droplet infection or dried sputum, from one person to another. Hence there should be no relaxation of measures designed to prevent infection, especially since such measures are in the main simply the edicts of good manners.

(2) Presuming that all known infecting cases could be isolated, it will be seen that the case of the great majority of people who develop phthisis would remain untouched.

(3) At least 85 per cent. of persons married to tuberculous partners escape the disease as apparently do medical and other staffs constantly dealing with it. The fact that Bootle, in common with Lancashire, and broadly speaking other industrial centres, suffers from the middle-age type of disease, i.e., persons from 35 to 50 years old, are the principal sufferers, would suggest an inference (different from that suggested by Dr. Brownlee, to whose painstaking research we owe the information), viz., that the prolonged strain of industrial life and all its accompaniments, poor feeding, bad housing, alcoholism, etc., etc., by finally sapping the resistance, permit the inroad of the tubercle bacillus, which is already present in the body or of almost universal distribution outside. The fact that males suffer more than females, and the increase of tuberculosis during the war as a result of increased hardship and strain, would support this view.

Remedies.—All the above conclusions would appear to urge the view that our hopes of diminishing and finally eradicating the disease must be centred on increasing the resistance of the individual, and not in a battle royal directed solely against the bacillus itself.

(1) Easily of first importance is a public opinion educated in the requirements of a healthy life, and the ordering of industrial arrangements in such a manner that such a life is possible.

(2) The constant inculcation in the schools of the salient facts of personal hygiene and amongst the elder girls of the importance of domestic economy, especially cooking, of which many of the present-day housewives appear woefully ignorant.

(3) The strengthening of the resistance of selected individuals at school, e.g., the so-called pre-tuberculous group, both in open-air schools and in sanatoria or convalescent homes. The increasing of similar facilities for adults, shewing signs of wear, long before the stage of final collapse, at which we commonly are asked to deal with them.

(4) The ensuring of a milk supply free from the tubercle bacillus (see page 20).

NOTE.—A fruitful source of investigation would be to know if the 'pre-tuberculous child' is actually the potential tuberculous adult of the morrow. Inquiry was made in this direction, but from the difficulty (which should be overcome) of preserving the multitude of school records, only a minimum of information was available, and the result was therefore inconclusive."

66. *Future Developments.*—As part of a campaign to enlighten the public on "how to live," and to tell them what tuberculosis is, arrangements have been made for the visit to Bootle in the autumn of 1920 of the Tuberculosis Exhibition of the National Association for the Prevention of Tuberculosis.

The Maghull Sanatorium, already too small for our needs, is about to be enlarged, thanks to the offer by the Ministry of Health of a grant of £180 per bed, provided the plans are submitted before the 30th June, 1920. The additional accommodation will be mainly for improving the

physique of delicate children, particularly those of tuberculous families, and so increasing their resistance, that they will be the more capable of withstanding the invasion of the ubiquitous tubercle bacillus.

A pavilion is now in course of erection at the Linacre Hospital for the accommodation of 28 advanced cases of consumption.

Arrangements are also being made to provide dental treatment for the tuberculous, particularly for those who are about to enter the Sanatorium.

67. *Non-Pulmonary Tuberculosis.*—During the year 30 deaths were certified to be due to tuberculosis other than pulmonary, and 53 new cases were notified, namely, 27 glands, 7 bones and joints, 10 abdominal, 4 tuberculous meningitis, 3 larynx, and 2 lupus. The six beds retained by the Corporation at the Leasowe Hospital for children have been constantly occupied throughout the year. Three cases were discharged cured during the year, while one was discharged as unlikely to make any improvement. As mentioned in previous reports, no accommodation is available for adult cases of non-pulmonary tuberculosis, and in children only the more serious joint cases which require prolonged and careful nursing can, as a rule, be accommodated at Leasowe. The Ministry of Health has drawn attention to the need for further accommodation for adults and for glandular and abdominal cases in children where open-air methods can be applied over a long period. A grant in aid of the capital expenditure is available for schemes approved before 30th June, 1920. An institution for non-pulmonary tuberculosis should contain at least 100 beds, and discussions with neighbouring authorities have already taken place with a view to joint action.

68. *Cost.*—The net cost of the Anti-Tuberculosis Scheme during the financial year 1918-1919 was £1,546. The approximate net expenditure for 1919-1920 was £2,314, and the estimated expenditure during 1920-1921 £3,072. This latter includes provision for the maintenance during a portion of the year of a large number of additional patients at the Linacre Hospital and Maghull Sanatorium, who will be accommodated in the extensions in process of erection. These sums are the net costs to the ratepayers, after deduction of all income, including Government grants; it is hardly credible that such an extensive scheme should cost so little, including as it does provision for 18 beds at the Linacre Hospital, 22 at Maghull Sanatorium, 6 at Leasowe Hospital, the maintenance of a dispensary at which the attendances number over 7,000 per annum,

and of a whole-time Tuberculosis Medical Officer, Nurse and Visitor. Before the close of the current financial year there will be an additional 28 beds at the Linacre Hospital, and if the scheme, for which provision has been made in the estimates, matures, over 40 additional patients at the Maghull Sanatorium.

VENEREAL DISEASES.

69. Only 2 deaths were certified to be due to venereal diseases (1 being an infant under 1 year of age); there were 3 deaths caused by general paralysis of the insane. These returns give a most erroneous conception of the killing capacity of the venereal diseases, and until we have a system of confidential certification of the cause of death, no true statement of the deaths caused by venereal disease can be made.

70. Our arrangements for the diagnosis and treatment of venereal diseases were still further expanded during the year. The attendances at the Treatment Centre at Bootle Borough Hospital were three times greater than in 1918, and during the first quarter of 1920 the new cases exceeded those in the same quarter of 1919 by 40.

Up to March, 1919, there were three sessions weekly, one being at 5 p.m. From then until the end of the year the Clinic was open for women and children only at noon each Monday and at 5 p.m. each Friday; for men only at 5 p.m. each Monday and 5-30 p.m. each Friday; and at noon on Thursday for each sex, though practically all the women attend at their special clinics. Appendix 16 on page 86 gives full details of the work done during the year. It will there be found that 684 patients made 4,827 attendances, an average of 26.7 at each of the four clinics held weekly, compared with 190 patients and 1,623 attendances and an average of 11.6 for each clinic during 1918. There were 610 male and 74 female patients of whom 242 men and 67 women were suffering from syphilis; 45 men and 1 woman from soft chancre; and 274 men and 5 women from gonorrhoea; 553 men and 44 women attended for the first time during 1919; 2,961 of the 4,827 attendances were made by Bootle patients; 1,003 by patients resident in the City of Liverpool, and 668 by patients resident within the area of the administrative County of Lancashire. The Treatment Centre is included in the official arrangements made by the Lancashire County Council for the treatment of their patients, and they pay a proportionate cost of the expenses. Provision was made in our agreement with the Committee of the Bootle Borough Hospital for an Irrigation Centre for the

daily treatment of cases of gonorrhoea, and it is hoped that the necessary alteration of the premises will soon be completed, so that this valuable adjunct to the work may be commenced. It was also agreed that early prophylactic treatment should be provided at any hour of the day or night. There was, however, no application for it. There were 502 in-patient days compared with 154 in 1919. The total number of in-patients being 20, compared with 6 in 1918. The number who discontinued treatment before completion has markedly declined; only 45 ceased to attend whilst still infectious: although this is serious enough it is much better than in previous years. Another 186 patients, though probably non-infectious, failed to attend for final tests to ascertain whether they were completely cured or not. Non-committal letters have been sent to those who discontinued treatment and in many cases secured their re-attendance.

During 1918 Bootle patients made 874 attendances at Liverpool hospitals, and during 1919 1,554 attendances. There were 505 in-patient days in Liverpool Hospitals of Bootle patients during 1918, and 97 days in 1919.

71. The number of bacteriological specimens examined from cases or suspected cases of venereal disease was 272, compared with 114 in 1918, and 100 in 1917. Two hundred and forty-three specimens, 1 for detection of spirochaetes, 1 for detection of the gonococcus, and 241 for the Wasserman re-action were examined by Professor Beattie, and 29, all for the detection of the gonococcus, in the laboratory of the Linacre Hospital. Fifty-four of the 272 specimens were sent by private practitioners; a specimen or specimens being received this year from no fewer than sixteen different doctors. Twenty-seven specimens were received from the Medical Officer of the Ante-natal Clinic. Particulars will be found in Appendix 17, page 89.

72. Salvarsan substitutes were available at the Town Hall, and 1,388 doses were supplied; 1,352 for use at the Treatment Centre, and 36 for use by three private practitioners, one of whom is the Medical Officer of the Treatment Centre.

73. Propaganda and educational work in the District is entrusted to the Merseyside Boroughs Branch of the National Council for Combating Venereal Diseases. Under their auspices series of public lectures

to men and women have been given. In Bootle itself, there was a public lecture attended by over 800, at which a film entitled "The End of the Road" was shown. The audience was first addressed by the Medical Officer of Health, and a lecturer from the National Council. There were also four dinner-hour lectures attended by 220 men and a lecture to 70 women. In addition to the above a number of women have attended addresses given at St. George's Hall, Liverpool, the Salvation Army Headquarters, and various Women's Clubs in Liverpool and District.

Literature dealing with the effects of Venereal Diseases and the necessity for immediate treatment was distributed at nearly all these meetings.

74. The total approximate expenditure on the prevention, diagnosis, and treatment of venereal diseases during the financial year 1919-20 was £1,697. It is estimated that during the current financial year the cost will be £2,524. Seventy-five per cent. of these sums will be recoverable from the Ministry of Health.

75. *Venereal Diseases Act.*—There was one prosecution during the year. The defendant was a herbalist, and was fined £20. It is very desirable that the Act should be amended so as to protect the witnesses for the prosecution against the publication of their names in the Press. In this case it was only after the witness had been promised that we would use our best endeavours to prevent the publication of his name that he consented to appear in court. The magistrates accepted his name and address on a slip of paper, but the defendant informed the open court of these particulars; the representatives of the Press, however, kindly refused to publish them.

MATERNITY AND CHILD WELFARE.

76. *Notification of Births Act.*—The number of births notified in accordance with the statute within 36 hours of their occurrence was 1,873 or 97.8 per cent. of those registered; 1,780 notifications were received from midwives, 81 from doctors and 12 from parents. A letter was sent to the parents of every child whose birth was unnotified, informing them of their failure to comply with the provisions of the Act. Of the children born in the town, 97.5 per cent. were visited by the Infant Welfare Visitors; the remaining 2.5 per cent. occurred in families where advice

on infant care and feeding would probably be obtained from other sources. There are four Infant Welfare Visitors who devote their whole time to Maternity and Child Welfare. A summary of their work will be found in Appendix 18 (page 89). Each infant is visited and advice given to the mother immediately after birth, and at the end of the first, third, sixth, ninth, and twelfth months; thrice during the second year, and subsequently at six-monthly intervals until the age of five years is reached. Special visits at more frequent intervals are paid whenever the condition of the infant demands it. Altogether 20,514 houses were visited, including 21,686 visits to infants and 1,591 to expectant mothers.

77. *Infant Consultations and Schools for Mothers.*—The Centres are under the control of a voluntary agency, the Bootle Health Society, but the Medical and Health Visiting Staff are provided by the Corporation. The Society rent the premises of the North Consultation, provide a trained teacher for the sewing class for mothers, and have in attendance at each Clinic a large and enthusiastic band of voluntary workers, to whose efforts the great success of the Centres is largely due. The North Consultation meets each Thursday at 2 p.m. at St. Matthew's Hall, and the South each Tuesday at the School Medical Offices. The Sewing Class, where model garments are made, is held each Friday. The number of attendances at the clinics was:—

		North	South	
		Consultation.	Consultation.	Total.
New cases under 1 year	...	274	294	568
New cases over 1 year	...	19	27	46
Old Cases	...	152	345	497
Total Attendances		3,615	3,806	7,421

The average attendance at each meeting was 71 at the North and 74 at the South Clinic. During 1918, 743 children made 5,458 attendances; the numbers have increased so much that two doctors are now necessary at the South Consultation, and will soon be required at the North. Two other Centres, one in Orrell and another in the Derby Road district would meet a need.

Although it is still unusual for babies to be brought to the consultations who are believed by their mothers to be perfectly healthy, it is slowly being realised that the main object of an Infant Consultation is

to keep healthy babies healthy, and not to cure sick ones: it is gratifying that this idea of associating doctors with keeping people healthy as well as curing the sick is at last bearing a little fruit so far as infant welfare is concerned. Fortunately, many of the disabilities of babyhood can be remedied by attention to the mode and frequency of feeding; whenever a child, however, is suffering from a definite disease the mother is requested to secure private medical advice.

Bearing in mind that up to now very few babies have been really healthy when they made their first attendance at a clinic, it is very gratifying to be able to record that excluding all deaths of children under four weeks of age, as a delicate baby would be unlikely before then to attend a clinic, the rate of infantile mortality amongst babies who had made any attendance at a clinic was 43 per 1,000 births, compared with 67 per 1,000 amongst those who had not attended.

The average attendance at each session of the sewing class was eight.

78. *Ante-Natal Clinic.*—This Clinic, which is held at the School Medical Offices each Wednesday morning is doing extraordinarily good work. During the year there were 196 new cases, and the total attendances numbered 932, compared with 160 patients and 602 attendances during 1918. The amount of suffering and distress relieved or prevented at this Clinic can hardly be credited except by those in attendance there. The new patients were sent:—by midwives 118, infant welfare visitors 43, and doctors 6. I am very grateful to the midwives for taking advantage to such an extent of the facilities afforded. All women expecting their first baby, all women who have had difficult labours previously, all women liable to miscarriage, and all expectant mothers suffering from a disability of pregnancy are welcomed.

Thirty-two mothers attended because recommended by friends or because they had attended during a previous pregnancy. A statistical summary of the work done at the Clinic will be found in appendix 19 (page 90).

79. *Still-Births.*—An enquiry is being made into the causation of still-births and abortions, and whenever they will consent the mothers are examined at the Ante-Natal Clinic. Several instances have occurred

of repeated still-births being followed by the birth of a live child as a result of carrying out the advice given at the Clinic. Eighty still-births were notified, being 4.1 per cent of the births registered; 64 were attended by midwives only, 4 by midwives and doctors, and 12 by doctors only. Full particulars were obtained of the 68 still-births notified by midwives; so far as could be ascertained, in 56 the child had died before labour, and in 12 it appeared probable that the child died during labour because of mal-presentation, smallness of the passages, etc.

The periods of gestation were:—5 months, 3; 6 months, 6; 7 months, 14; 8 months, 17; 9 months, 28; total 68.

Sixty-six of the mothers performed household duties; one was a barmaid, and one worked at a tobacco factory. The fathers of 24 were labourers, 9 sailors, and 5 soldiers. The alleged causes were a fall in 12 cases; a shock 6; general ill-health 6; over-exertion 3; worry 1; influenza, 2; a blow 1; pneumonia 1; breech presentation 6; ante-partum haemorrhage 1; difficult labour 1, unknown 28. The previous obstetrical history of the 68 mothers was:—live full-time births, 169; still-births, 25; miscarriages, 18; premature births, 11. Thirty-five of the foetuses were obtained for bacteriological examination, and in 4 or 11 per cent. the spirochaetes of syphilis were found in the liver. Two of the mothers are being treated for syphilis, one refused treatment, and the fourth has left the district.

80. *Ophthalmia Neonatorum*.—Forty cases were notified during the year, compared with 33 in 1918; 47, 1917; 38, 1916; and 19, 1915. The rates per 1,000 births have been 20.9 in 1919, and 18.2, 25.1, 18.3, and 9.3 in the four preceding years, showing that since 1915, there has been a considerable increase in the incidence of this affection, which is caused in the great majority of cases by venereal disease.

Nineteen of the babies were treated under the supervision of private medical practitioners; in all save 6 the District Nurses were also in attendance. Five received attention as out-patients at St. Paul's Eye Hospital, Liverpool, and 3 as in-patients; four of the out-patients were also treated by the District Nurses. In 13 cases the discharge was so slight that no medical attention was necessary, but in 12 of these the District Nurses attended

Thirteen of the mothers had apparently suffered during pregnancy from a condition that should have directed the attention of the midwife to the likelihood of ophthalmia supervening in the child, and in two cases previous children had had ophthalmia. It is to be regretted that cases appear to be booked by certain midwives in a somewhat casual fashion, and their attention has been directed to the need for full enquiry, before accepting the case, into the patient's health during pregnancy, and the results of former labours.

The District Nurses paid 631 visits to the 31 cases of ophthalmia which they attended. Two of the children very delicate from birth died before the eyes were healed; in the other 29 the sight is apparently quite normal.

81. *Provision of Home Nursing.*—Since the 1st January, 1919, the District Nurses, who now reside within the borough, have nursed cases of measles, whooping-cough, pneumonia, ophthalmia, diarrhoea, acute poliomyelitis or puerperal fever referred to them by the Corporation. Fifty-five cases were referred during the year, namely:—

	Number of			Total Attendances.
	Cases.	Cured.	Died.	
Ophthalmia Neonatorum	... 31	29	2	631
Pneumonia	... 12	9	3	128
Measles	... 6	6	—	103
Diarrhoea	... 2	1	1	11
Puerperal Fever	... 2	2	—	46
Post-partum Haemorrhage	... 1	1	—	7
Marasmic Baby	... 1	—	1	2
	—	—	—	—
	55	48	7	928
	—	—	—	—

The pneumonia cases were in adults, but are included here for convenience. The Nurses have carried out their duties admirably.

82. *Hospital Treatment of Children.*—Apart from the three cases of ophthalmia neonatorum treated as in-patients of the St. Paul's Eye Hospital, Liverpool, four infants were admitted to the Leasowe Babies' Hospital: they were all very wasted, and in consequence the results have been unsatisfactory; two have died since their discharge, and one is still very ill, but the fourth is quite healthy.

No case of measles was admitted to the Walton Institution, and there was no application during 1919 for convalescent home treatment for either mothers or children.

83. *Treatment of Children under School Age at the School Clinics.*—During the year application was made to the Education Authority for permission to send children under school age for treatment at their Clinics, particularly the Ophthalmic, Throat and Remedial Exercises. Advantage has already been taken of these facilities.

84. *Care of Illegitimate Children.*—During the year arrangements were made with five institutions to take Bootle cases: the Corporation agreed to pay 5/- per week towards the maintenance of a mother or a child and 7/6 for both mother and child. After the birth the mother is assisted to obtain an affiliation order, and pays the sums received to the Institution, the balance of the cost of maintenance being obtained by voluntary contributions.

The nature of the work done by each of the Institutions may be briefly described:—

1. "Inglefield," Oakhill Park, Liverpool.—Only healthy babies are admitted: a mother can visit her child at any time: it is undenominational, and is managed by a voluntary committee.

2. The Salvation Army Home, "Cradlehurst," Edge Lane, Liverpool. The mothers are admitted two or three months before the expected confinement, and they leave as a rule some four weeks after it: there is a system of after-care for both mother and baby when they leave the Home. The labours take place there.

3. "St. Hilda," Penny-lane, Liverpool. This is under the control of the Liverpool Diocesan Association for Preventive and Rescue Work. The mothers are received three months before the confinement, labour takes place at the Liverpool Maternity Hospital, and the mothers and children return to "St. Hilda" some two weeks afterwards. The mothers must remain until the babies are six months old; they may then go out to work, leaving the babies at "St. Hilda" until they are five years old, when they would be either taken by their mothers or transferred to a Home of the Church of England Waifs and Strays Society.

4. The House of Providence, Aigburth, Liverpool. This is a Roman Catholic Institution. It is only mothers and children together who are received there; expectant mothers are not admitted, and when the mother leaves, the child, as a rule, must go also. The women often remain for about two years.

5. The Cottage Home, Shiel Road, Liverpool. This does similar work to that of the House of Providence, but is not on such a large scale nor is the situation of the Home so good. It is under Church of England auspices.

The Authority propose to deal only with women who are expecting a *first* illegitimate baby.

Up to the end of the year, five cases had been sent to these Institutions; two to "Cradlehurst," and one each to "Inglefield," "St. Hilda," and the "House of Providence."

There is no doubt that this scheme is the seed of a social work of the first importance which will have its effect not only on the death-rate of illegitimate children, but on the incidence of prostitution, the ranks of "fallen" women having been so very often in the past recruited from those who had been expelled from home because of having given birth to an illegitimate child, and been abandoned by the father.

85. *Midwives' Acts, 1902 and 1918.*—The number of midwives on the local roll is 21; eight others who reside outside the district gave notice of their intention to practise in the Borough. Only one of the midwives is untrained. Midwives attended, during 1919, 1,798 births or 93.9 per cent. of all those which occurred in the town, compared with 96 per cent. in 1918, 87.3 in 1917, and 79.5 in 1914. In 1919 there were only 116 births which were attended by a doctor alone. The fees now charged by midwives are from £1 1s. to £1 10s. per case.

Arising out of attendance at the births for which midwives were engaged, 253 records of sending for medical help were received, or 14.1 per cent. of the births attended by midwives, compared with 8.3 per cent. in 1918, and 7.2 per cent in 1917, showing what a large increase has resulted from the Corporation taking over responsibility for the payment of the doctors' fees, which they did on the 1st January, 1919. Two

of the calls were for abnormalities which occurred during pregnancy, 127 for unusual presentations or obstructed labour, 31 for ruptured perineum, 38 for illness of the mother during the lying-in period, 13 for dangerous feebleness or prematurity of the child, and 19 for inflammation of the infants' eyes or eyelids. In these 253 cases a private doctor was called urgently because of some serious complication, and is apart from the 118 expectant mothers who were sent by midwives to see the Medical Officer of the Ante-Natal Clinic.

A list of ten doctors who are willing to respond to the call of a midwife has been prepared and circulated amongst the midwives, together with a list of five others who are not anxious to undertake this class of work, but are willing to respond to a call when none of those on the first list is available. The scale of fees for doctors, authorised by the Ministry of Health, has not been satisfactory in that no special provision was made for payment for stitching a ruptured perineum by a doctor who did not himself deliver the patient; it is, however, about to be revised.

To save book-keeping and the time of the Infant Welfare Visitors in making enquiry into the financial circumstances of the families concerned, it is only when the doctor cannot recover the fee himself that he sends his account to the Corporation: altogether 42 accounts amounting to £83 9s. 6d. were received. As a result of enquiry the contributions of the patients were assessed at £27 8s. 0d.; in 16 cases the full fee was paid by the Corporation, and in 4 by the patient; in five instances the patient paid one quarter of the fee: in six between a quarter and a half; in 10 between a half and three-quarters, and in one three-quarters. It would facilitate the collection of the money if the doctors sent their accounts within at most a few weeks of attending the confinement. The making of enquiries into the financial circumstances of the families they visit, is a duty for which an Infant Welfare Visitor is not particularly suited, yet there is not sufficient work to warrant the appointment of a special officer even though other work of a similar kind could be done by him, e.g., assessing contributions towards cost of hospital treatment, of milk supplied to mothers, of free meals to children, etc. The unification of the work of public assistance performed in each locality is urgently required.

During the year four midwives were reprimanded, two for neglect with regard to cases of puerperal fever, and two for failure to notify cases of ophthalmia neonatorum. One of the deaths from puerperal fever was the subject of an inquest by the Liverpool City Coroner. The conduct of the midwife was investigated, and the verdict was to the effect that "there is nothing to suggest neglect on the part of the midwife."

86. *Puerperal Fever.*—There were 6 cases of puerperal fever notified. In each case the confinement was attended by a midwife, and a doctor was called in upon the onset of the symptoms of the disease, three to ten days after the birth. Three of the cases were attended by the same midwife, an untrained one, and it is possible that the infection was conveyed from one patient to another. As mentioned before, two midwives, including the untrained one, were reprimanded, but after thorough investigation it was decided that there was not sufficient evidence to warrant a report of the matter being sent to the Central Midwives' Board. Two of the cases were admitted to the Walton Institution where one died. The other four were treated at home by their private doctors; three recovered: in two which recovered the District Nurses attended.

87. *Mortality in connection with Child-Birth.*—There were 5 deaths from "Diseases and Accidents of Pregnancy," two from sepsis following miscarriages, one each from broncho-pneumonia and pulmonary embolism, and one from an indeterminate cause following miscarriage at the seventh month. Including the two deaths from puerperal fever, there were seven deaths, resulting from, or in connection with child-birth, being at the rate of one for every 273 births compared with one for every 362 births in 1918 and one for every 374 in 1917.

88. *Home Helps.*—The suggestion that women should be trained to do the domestic work and look after the children during the mother's confinement at home or in hospital was received by me with enthusiasm, but, unfortunately, the difficulties of obtaining suitable women for the work and of finding regular work for the Helps have proved very great. On many occasions engagements have been made by the Infant Welfare Visitors for three successive "Home Helps" to interview a patient, but not a single one put in an appearance. Sometimes the mother and the Home Help have an incompatibility of temperament which leads

to an early separation ; fortunately no difficulty has been experienced with the husbands.

The scheme was that we should at first temporarily employ as many women as would undertake the work, paying £1 a week and their food when working for us ; that we would select the most suitable and send them at our expense for special training to a Children's Home : they would sign a guarantee before training to remain with us for at least twelve months ; after training they would be taken on to the permanent staff, paid 3/- a day and food when working for us and 1/6 a day without food when not working, but they would be free then to do any other work, provided they were prepared to go to a case at twelve hours' notice. The patients provide food for the Helps, and pay the Corporation as much as is considered reasonable. The first great difficulty was in fixing a time when the Help should start work. The mother would fix an approximate date, but if the date of confinement was delayed she would refuse to take the Help on the appointed day, with the result that the Help might be out of work for two or three weeks, waiting for the baby to be born. Another difficulty was caused by the Helps' tittle-tattling from one house to another. Altogether seven Helps were sent to cases, and one was trained and taken on to the permanent staff ; another is being trained at the time of writing ; fourteen cases have been attended altogether, six by the permanent one, who, however, was unemployed for five weeks since she completed her training in September, 1919. The periods for which the Helps have remained at the cases varied from three to fifty-six days, the average being three weeks. The patients' contributions ranged from 5s. 6d. to £1 1s. 0d. per week, the total being £18 17s. 11d., out of a wages bill of £36 1s. 11d. The right women trained as Home Helps would do an enormous amount of good, but the difficulties involved in starting the scheme have at times appeared almost insuperable.

89. *Maternity Hospital*.—A Maternity Hospital is absolutely essential if our Maternity and Child Welfare Scheme is to be complete. Beyond the Poor Law accommodation, there is only the Liverpool Maternity Hospital of twenty-five beds and " Quarry Bank " to receive abnormal cases from an area containing over three-quarters of a million people, amongst whom there are over 20,000 births per annum. It is only occasionally therefore that a Bootle case can be admitted : there were 4 women admitted from Bootle in 1919.

Not only is a hospital needed to which women may be taken in the course of a difficult confinement, but it is just as important to provide accommodation for cases discovered at the Ante-Natal Clinic, where induction of labour a few weeks early may save the lives of both mother and child. Under present housing conditions, which apparently will not be appreciably relieved for some time, accommodation is required for normal cases for which there is no room at home ; cases are known to me of women being confined in a five-roomed house containing four families and in a house where three adults and six children had only two bedrooms. A further use to which such an Institution could be put would be as a Rest Home for women with diseases or disabilities of pregnancy, and who could not receive, owing to the largeness of their families or for other reasons, adequate treatment at home. It is while the mothers are in hospital that Home Helps would be so valuable. Owing to the impossibility of acquiring suitable premises nothing was done during 1919, but it is hoped that definite steps in this direction will be taken almost immediately. In the meantime arrangements have been made for very urgent cases to be admitted to a nursing home. It is not perhaps generally realised that the Stanley Rogers Memorial Home, " Quarry Bank," Hawthorne Road, Bootle, is maintained by the Liverpool Corporation, and is not therefore available for Bootle patients. When the suggestion of taking a portion of the accommodation there was made in 1917 the Health Committee decided that it would be preferable to establish a separate Home of their own.

90. *Dental Work for Expectant and Nursing Mothers.*--A dental chair and equipment have now been obtained ; also the use of the dental room at the School Medical Offices, and this branch of the work will soon be in operation.

91. *Fabrics (Misdescription) Act, 1913.*--Three samples were taken under this Act, which requires flannelette sold as "non-inflammable" to conform to prescribed tests. Each tradesman remarked when he was selling the flannelette that he could not guarantee that it was non-inflammable : one sample passed the test, the other two did not.

92. *Bootle Health Society.*--This Voluntary Society, now in its fourteenth year, is performing excellent work for the mothers and babies

of the town: co-ordination with the official work of the Health Department is complete. Voluntary workers assist at all the Clinics; the Society lends maternity bags containing model garments to the needy, and supplies shortening clothes; they send a midwife in necessitous cases; they lend perambulators to the mothers of rickety children who cannot get enough air; they give spectacles to expectant mothers who need them; they teach the mothers how to sew and mend. They conduct a most popular Baby Show every year; have established a flourishing branch of the "No Dummie" League; sell fireguards at cost price or give them to the needy, and in many other ways step in and help just where an official scheme can render no assistance.

93. *Maternity and Child Welfare.*—The cost of the Maternity and Child Welfare scheme during 1918-1919 was £409, and the approximate expenditure during 1919-1920, £597. These are the net costs after provision has been made for patients' contributions and Government grants. It is estimated that the expenditure during 1920-1921 will be £1,028. This includes provision for the maintenance of 10 beds in a Maternity Hospital during the last six months of the year.

SANITARY ADMINISTRATION.

94. *Staff.*—There is an Inspector of Nuisances and three assistants, one of whom is responsible for food inspection; the other two have each a district. There is no specially appointed Housing Inspector. Owing to the difficulties incidental to the seizure of unsound food, Parliament is now being asked to give each of our Assistant Inspectors of Nuisances the status and powers of an Inspector of Nuisances, so that they may be able to perform all the duties of the Chief Inspector, including the seizure of food. The inspectorial staff is insufficient for the needs of the town, and one or two additional inspectors who would specialise on housing are needed.

95. *Hospital Accommodation.*—A description of the Linacre Hospital for Infectious Diseases, which was built in 1886, and now contains 108 beds, will be found in my Report for 1914; 18 of the beds are for cases of advanced tuberculosis. Beds in the fever portion of the hospital are available for the reception of cases of infectious diseases occurring in the neighbouring Urban Districts of Litherland and Formby.

Arrangements have been made for Bootle cases of smallpox to be treated by the Liverpool Corporation, and the hospital built at Maghull for smallpox, but never used for that purpose, is doing most valuable work as a sanatorium. Eight smallpox patients were referred by us to Liverpool in 1919, and accommodated in their New Ferry Hospital.

The Corporation possesses an Isolation House with accommodation for about twelve persons in the Linacre Lane Store Yard. It is used when thorough disinfection of a house is necessary; the inmates of the house are taken to the Isolation House, bathed while their clothes are being disinfected, and allowed to live at the house, food and bedding being provided by the Corporation, until their own home is ready for re-occupation. The house was of great value at the time of the outbreak of smallpox.

During the year there was a very great strain on the nursing staff of the Hospital, which is only sufficient for the ordinary use of the hospital, and allows no margin for increased pressure of work. The night-nurses work 77 hours a week and the day-nurses 64 hours. The recreation and dining rooms for the nurses are quite inadequate. A proposal has now been made to acquire an army hut to provide sleeping accommodation and a recreation room for 13 additional nurses; this is an urgent need and should be carried into effect at once. It will enable the hours of duty of the nurses to be reduced to 50 per week, and will also house the nurses required for the new pavilion for tuberculous patients.

The following table gives a summary of the cases dealt with during 1919; in appendix 20 (page 92) will be found full particulars.

	In hospital 1st January,		In hospital on 31st December.		Case- Mortality.
	1919.	Admitted.	Died.	1919.	
Scarlet Fever	... 15	361	13	58	4.0%
Diphtheria	... 13	103	20	11	19.0%
Enteric Fever	... —	4	—	—	—
Phthisis	... 12	80	10	15	12.9%
Influenza	... —	11	—	—	—
Other Diseases	... —	82	5	1	6.1%
	—	—	—	—	—
	40	641	48	85	8.0%

Excluding cases of phthisis, the case-mortality was 7.3 per cent.

Six of the scarlet fever cases, one of phthisis, one enteric fever, and 70 of the diphtheria cases were re-diagnosed before they left the Hospital. The cases are classified in the table as finally diagnosed at death or discharge. Bootle cases admitted numbered 445, Litherland 147, Formby 16, Seamen's National Insurance Society 12, Lancashire County Council 5, and 16 members of the Q.M.A.A.C. The total number of patients treated during 1919 was 681 compared with 630 in 1918, 444 in 1917, and 430 in 1916. Deaths totalled 48; Bootle 29, Litherland 12, Formby 4, and Lancashire County Council 3.

The net cost of the hospital for 1918-1919 was £3,554. The approximate expenditure during 1919-1920 was £4,272; the estimated expenditure during 1920-1921 is £5,126. The latter includes provision for certain repairs and replacements, which have not received attention during the war.

97. *Rag Flock Act*.—Rag Flock is used at only one shop in the town; a sample of this was taken, and on chemical examination it was found to be clean.

BACTERIOLOGICAL AND PATHOLOGICAL EXAMINATIONS.

98. The following are particulars of the examinations carried out during 1919 at the Hospital Laboratory, the Maghull Sanatorium, and the Tuberculosis Dispensary:—

Examinations required.		Positive Result.	Negative Result.	No. of Specimens examined.
Swabs for Diphtheria	...	119	571	690
Sputa for Tubercle Bacilli	...	272	503	775
Hairs for Ringworm	...	17	27	44
Others	...	—	2	2
		—	—	—
Totals	...	408	1103	1511
		—	—	—

In addition, 24 samples of milk, 24 rats, 13 post-nasal swabs for meningococci, 4 sera for Widal reactions, 6 faeces, 1 specimen of pleural fluid, and 243 specimens for venereal diseases were examined bacteriologically by Professor Beattie at the Liverpool University.

HOUSING.

99. It is suggested by the Ministry of Health that a separate volume might be prepared this year on the important and even fundamental matter of housing. The reasons which have decided me not to adopt this course are (1) owing to the length of time which has elapsed since the last census, and the complete upheaval which has occurred in the meantime, figures relating to the distribution of the population are quite unreliable, except for a few details obtained last year from the applications for food rations; and, as a result of demobilisation, even these figures may now be quite misleading: (2) inspection of houses under the Housing (Inspection of District) Regulations ceased in 1915, when only 1,151 houses had been reported upon. A detailed statement of the sanitary condition of the houses is therefore at present impossible; (3) the Housing Committee and the members of the Council are (apart from their own observations), as a result of the report on the subject which I submitted in 1918, quite cognisant of the overcrowding which exists and of the urgent need for more houses, and are most anxious to improve the present conditions. So long ago as November, 1918, they acquired a site of 50 acres, and proceeded to erect houses with such speed as was possible, subject to compliance with the directions of the Ministry of Health, and to overcoming the difficulties incidental to obtaining money to finance the scheme. Now, in May, 1920, not a single house is ready for occupation; only 54 are in course of erection, and it is only two weeks ago since 20 of those were started.

The demonstration therefore in detail of inadequate housing which is obvious to the most casual observer, would not, if we judge by past experience, hasten the erection of the new houses which must be ready for occupation before any scheme of demolition of unfit houses can be entertained.

Subject to the above-mentioned considerations, I shall now deal *seriatim* with the points upon which the Ministry of Health desire information.

GENERAL HOUSING CONDITIONS IN THE DISTRICT.

100. I.—(1) *Number of Houses.*—The number of houses in the Borough at the end of the year was 13,424. No house was built during the year, but 13 (5 of which were in Laburnum Place, 6 in Litherland Road, and 2 in Waterworks Street) were demolished, these being the remainder of

the block of property mentioned in last year's Annual Report, which has now all been removed to make way for the extension of a Tannery.

It is estimated that there are some 11,500 of these 13,424 houses let at a rental of £20 per annum or less. At the end of 1919, 34 houses were in course of erection by the Corporation, and another 20 have been started since then. No other houses are being built.

101. (2) *Population*.—The total population estimated to the middle of the year by the Registrar General is given as 80,172, but my estimate of the population in May, 1920, is 81,500.

102. (3) (a) *Extent of Shortage of Houses*.—A reference to the Report for 1918 will show that the shortage of houses in the Borough on an estimated population of 80,500 was 826; on the present estimated population of 81,500, allowing as before 5.6 persons per house as were found at the last census, when 1,011 houses were unoccupied, the shortage is now 1,004 houses. If only five persons to the house are allowed the shortage is correspondingly greater, but it must be remembered that Bootle has a larger proportion of five-roomed tenements and a smaller number of tenements with four or less rooms than most towns. In any estimate of the future needs, provision should be made not only for the natural increase of the population by births, and by immigration to man the factories now being built, but also to replace the houses which will undoubtedly be demolished in the near future to make way for industrial development.

103. (b) *Measures taken or contemplated to meet any shortage*.—It is proposed to build altogether 582 houses on the site purchased eighteen months ago; at the present rate of progress it will be very many years before this portion of the scheme is completed: the provisional allocation of the types of houses is:—

Living Room, Scullery and 2 Bedrooms	...	44
Living Room, Scullery and 3 Bedrooms	...	224
Parlour, Living-room, Scullery, and 3 Bedrooms	266	
Parlour, Living-room, Scullery, and 4 Bedrooms	24	
Cottage Flats, comprising Living Room, Scul- lery, and 2 Bedrooms	...	24

An order has been made for the compulsory purchase of an adjoining site of twenty-eight and a half acres on which three hundred houses can be built.

104. II.—*Overcrowding.*—(1) *Extent.*—At the time of the census when hundreds of houses were empty, 9.2 per cent. of the population of Bootle were regarded by the Registrar-General as living under overcrowded conditions, *i.e.*, an average of more than two persons per room (including living rooms). There is now not a single empty house in the town; more than 1,500 houses are occupied by more than one family, some by as many as five, and the population is increasing. One seven-roomed house has twenty-two occupants: a five-roomed house 16, another 15, etc.

105. (2) *Causes.*—As will be seen by the following table showing the houses erected year by year since 1905, the shortage is not entirely due to the War.

HOUSES ERECTED.

		Wards—Derby.	Stanley.	Mersey.	Knowsley.	Linacre.	Orrell.	Whole Borough.		
Apr.	1905-Mar.	1906	...	278	52	—	—	214	—	544
„	1906- „	1907	...	190	25	—	—	110	26	351
„	1907- „	1908	...	73	64	1	—	51	11	200
„	1908-Dec.	1908	...	46	52	—	—	14	21	133
Jan.	1909- „	1909	...	44	44	—	1	10	1	100
„	1910- „	1910	...	7	15	—	—	6	11	39
„	1911- „	1911	...	19	—	—	—	1	—	20
„	1912- „	1912	...	17	1	—	—	19	8	45
„	1913- „	1913	...	—	—	—	—	—	13	13
„	1914- „	1914	...	—	—	—	—	7	22	29
„	1915- „	1915	...	1	—	—	—	—	14	15
„	1916- „	1916	...	—	—	1	—	—	20	21
„	1917- „	1917	...	—	—	—	—	—	12	12
„	1918- „	1918	...	1	—	—	—	—	—	1
„	1919- „	1919	...	—	—	—	—	—	—	—
			—	—	—	—	—	—	—	
			676	253	2	1	432	159	1523	
			—	—	—	—	—	—	—	

Some 15 years ago there was over-building; this caused a slump in property. It is not in my province to say whether it was cause and effect, but after the passage of the Finance Act of 1909 there was a marked diminution in the number of houses erected, and the War, which caused a local increase of population and at the same time entirely stopped building, has brought the matter to a climax.

106. (3) *Measures taken or contemplated to deal with overcrowding.*—The answer to this may be put in the form of a negative, to the effect that, until more houses are built, it is useless to follow up by prosecution the service of a notice for overcrowding, or to require property owners to spend so much on putting their houses into proper repair that they would prefer to close them.

107. (4) *Principal cases of overcrowding dealt with during the year and action taken.*—Only twenty notices were served upon the occupiers of overcrowded houses, and in most cases, after a more or less prolonged delay, improvement was effected by altering the sleeping arrangements in the house or lodging some of the inmates elsewhere.

108. III.—*Fitness of Houses.*—(1) (a) *General Standard of Housing in the District.*—The general standard of the individual houses in the district can be said to be satisfactory on the whole, though the exceptions will be dealt with later; there are no back to back houses and no privies except in the rural parts, but nearly all the working class dwellings have been built with the minimum yard space required at the time of their erection, and are therefore distinctly congested. The following particulars on this point were submitted to the Health Committee by the Borough Engineer in 1914:—

109. *Number of Houses per Acre in Certain Districts.*

(1) Bootle Hall Estate.—18.43 acres, 908 houses = 48 houses per acre.

(1a) Bangor Street (one side, including Marsh Lane shops), 57 houses = 57.6 houses per acre.

(1b) Stafford to Talbot Streets (including both sides Stafford Street one side Talbot Street, and including Marsh Lane shops), 93 houses = 55.1 houses per acre.

(2) Derby Road, East Side, Johnstone Street to Lincoln Street, 4.60 acres, 231 houses = 50 houses per acre.

(2a) Camden to Emley Streets (including both sides Camden and Emley Streets and including Derby Road shops), 80 houses = 69.6 houses per acre.

(2b) Johnstone Street to Camden Street (including Derby Road shops), 2.7 acres, 158 houses = 58.6 houses per acre.

(3) Recreation Street (one side only, West side), 26 houses = 49 houses per acre.

(4) Block bounded by Beatrice Street, Miranda Road, Hawthorne Road, and Liverpool Boundary, $7\frac{1}{4}$ acres, 285 houses = $39\frac{1}{3}$ houses per acre.

(5) Pleasant View, Place, etc., and Sandy Lane. 2.16 acres, 102 houses = 47 houses per acre.

(6) Block bounded by Peel Road, Knowsley Road, Gray, Gower, and Moore Streets, 20.6 acres, 756 houses = 36.7 houses per acre

(7) Block bounded by Peel Road, Spencer Street, Marsh Lane, and Bibby's Lane. 11.6 acres, 396 houses = 34 houses per acre.

110. (b) *General Character of the Defects found to exist in unfit Houses.*—The defects are those due to the houses being in a state of general lack of repair. Very little money has been spent upon them since the early days of the war, and as the adage "a stitch in time saves nine" applies with particular appropriateness to a house, their general condition leaves much to be desired. The indirect effect of the Rents Restriction Acts in stopping repair work on property should receive careful attention, and any amendment of that Act should provide for a sufficient increase in the rent to allow for repairs to be executed at their present price, and should make the putting of the houses into satisfactory repair a condition of the receipt of the increased rent.

111. (2) *Action taken as regards unfit houses, under (a) the Public Health Acts, (b) the Housing Acts.*—The action taken under the Public Health Acts is dealt with on page 75.

The work under the Housing (Inspection of District) Regulations, 1910, has been abandoned since 1915. The following is a complete statement of all the work done under the Housing (Town Planning etc.) Act, 1909.

HOUSING, (TOWN PLANNING, &c.) ACT, 1909, AND HOUSING (INSPECTION OF DISTRICT) REGULATIONS, 1910.

WORK DONE UP TO 31ST DECEMBER, 1919.

Number of Houses inspected under and for the purpose of Section 17 of the Act of 1909. (1)	Number of houses considered to be in a state so dangerous and injurious to health as to be unfit for human habitation. (2)	Number of representations made to the local authority with a view to the making of closing orders. (3)	Number of Closing Orders made. (4)	Number of houses (respecting which orders had been made) which were demolished without orders for demolition being made. (5)	Number of houses which, after the making of closing orders, were put into a fit state for human habitation. (6)	Number of houses declared not reasonably fit for human habitation (Sec. 15 Housing, etc., Act, 1909.) (7)
1,151	99	99	99	99	—	119
Number of houses repaired after notices under Sec. 15 of Housing, &c. Act, 1909. (8)	Number of Notices under Sec. 15 not yet complied with. (9)	Number of houses ordered to be repaired, otherwise than under Sec. 15 of the Housing, Act, etc., 1909. (10)	Number of houses dealt with in column 10 which were repaired. (11)	Number of houses dealt with in column 10 and not yet repaired. (12)	Number of houses in which no repairs were required. (13)	
119	—	912	912	—	21	

To re-inspect these houses and inspect the remaining ten thousand would require the services of a considerable number of additional inspectors.

112. (3) *Difficulties in remedying unfitness, special measures taken, and any suggestions in the matter.*—There is a shortage of materials, but the great difficulty in getting repair work done is that the

property owners allege that they cannot afford to do any repairs except the most urgent.

113. (4) *Conditions, so far as they affect housing, as regards water supply, closet accommodation, and refuse disposal, together with measures taken during the year in these matters.*—See page 13 for water supply and page 14 for closet accommodation and refuse disposal.

114. IV.—*Unhealthy Areas.*—No areas have as yet been represented under Part I. or Part II. of the Housing Act of 1890. A report on certain unsatisfactory areas was sent by the Council to the Housing Commissioner as part of the “Survey of Housing Needs,” in October, 1919. I do not consider it desirable in a report which will be made public to indicate in detail the action which it is proposed to take with regard to them, as part of the proposal is to purchase certain houses with a view to the creation of children’s playgrounds in the very congested districts. The closure of 15 tenements and the demolition of 19 insanitary houses is urgently necessary, but even that cannot be done until a considerable number of new houses is ready for occupation.

115. V.—*Bye-laws relating to houses, to houses let in lodgings, and to tents, vans, sheds, etc.*

(1) *As to working of existing bye-laws.*—The Bye-laws relating to houses let in lodgings became operative in Bootle in 1904, and were revised in 1912. Bye-laws relating to tents, vans, and sheds were first adopted in 1888, and again in 1904.

(2) *As to need for new bye-laws or revision of existing bye-laws.* New powers with regard to sub-let houses can now be obtained, but as we do not use the powers we already possess with regard, for example, to the provision of a second water closet when there are more than twelve persons in the house, or of water to every floor occupied by a separate family, it does not appear to be a matter of urgency to adopt any new provision, though it is admitted that the occupation of a working-class house by two or more families is the most potent housing evil of our day.

As pointed out in the report for 1910, the disabilities of sub-tenants arise from—

- (a) Absence of suitable and convenient water supply.
- (b) Absence of scullery or sink.
- (c) Absence of a proper place to store food.
- (d) No fire-place for cooking food.
- (e) Inconvenient access to water closet.

In most of the sub-let houses found in Bootle it is structurally impossible to rectify these defects, and it must be borne in mind that it is the principal tenant, not the landlord, who reaps the benefit of sub-letting. The landlords would no doubt welcome our putting into operation the most drastic bye-laws with regard to sub-letting, and would invite us to turn the sub-tenants out, so that the need for altering the houses would not arise. An evil which should be controlled is the profiteering in one, two or three unfurnished rooms by tenants who sometimes exact from sub-tenants more than the total rent of the house.

For Housing Statistics, see appendix 21 page 95.

APPENDIX 1—

VITAL STATISTICS OF WHOLE DISTRICT DURING 1919 AND PREVIOUS YEARS.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT			
		Un-corrected Number.		Nett.		Number.		Rate.*		One Year of Age Rate per 1,000 Nett Births	
		3	4	5	6	7	8	9	10	11	12
1913.	72,186	2,132	2,166	30 0	1,065	14·7	52	25·2	316	145	1·265
1914.	73,230	2,279	2,321	31·7	1,033	14·1	54	26·3	286	123	1·242
1915.	Civil 71,617 Total 74,285	2,023	2,050	27·6	1,054	14·7	62	29·4	292	142	1·286
1916.	Civil 71,135 Total 77,396	2,047	2,076	26·8	1,101	15·5	80	25·8	227	109	1·279
1917.	Civil 68,871 Total 76,772	1,853	1,873	24·4	1,023	14·1	91	28·1	187	99	1·213
1918.	Civil 73,500 Total 80,500	1,781	1,810	22·5	1,224	16·6	63	26·8	210	116	1·429
1919.	Civil 77,000 Total 80,500	1,860	1,914	23·8	988	12·7	79	24·5	184	96	1·154
											14·99

* These rates are based on the uncorrected numbers.
Area of District in acres, (land and inland water)—1,947.

Total population at all ages at census of 1911, 69,876; the number of inhabited houses 12,402, average number of persons per house 5·63.
All rates for the year 1919 with the exception of the birth rate, are worked on the civil population of 76,962. The birth rate is worked on the estimated population at mid-year of 80,172.

APPENDIX 2.

CASES OF INFECTIOUS DISEASES NOTIFIED DURING THE YEAR 1919.

Notifiable Diseases.	Number of Cases Notified.										Total Cases Notified in each Locality (e.g., Parish or Ward) of the District.										
	At Ages—Years.										Ward.										
At all Ages.	Under 1.	1 and under 5 years.	5 and under 15 years.	15 and under 25 years.	25 and under 45 years.	45 and under 65 years.	65 and upwards.	Derby.	Stannery.	Mersey.	Knowsley.	Ward.	Ward.	Ward.	Ward.	Ward.	Ward.	Ward.	Ward.	Ward.	Ward.
Smallpox	8	—	1	—	—	—	—	—	—	—	—	1	1	6	—	—	—	—	—	—	—
Cholera-Plague	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Measles	426	14	161	249	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
German Measles	29	—	12	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria (including Mem-branous Group)	168	1	46	91	5	4	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Erysipelas	19	1	—	244	17	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever	353	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Typhus Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever	5	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Continued Fever	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Puerperal Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cerebro-spinal Meningitis	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poliomyelitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulmonary Tuberculosis	150	—	2	39	44	55	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other forms of Tuberculosis	53	1	—	9	26	5	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ophthalmia Neonatorum	40	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
* Infantile Diarrhoea	11	10	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Influenza Pneumonia	55	2	11	13	4	14	10	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Primary Pneumonia	36	2	5	8	5	8	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Trench Fever	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaria	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis Lethargica	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	1370	71	338	675	117	115	45	9	223	122	166	221	477	161	503						

Total cases removed to Corporation Hospital, Linacre Lane, Bootle; Bootle Sanatorium, Magdall.

* Voluntary notification of cases under the age of two years during July, August and September.

Isolation Hospital or Hospitals, Sanatoria, etc.:—Corporation Hospital, Linacre Lane, Bootle; Bootle Sanatorium, Magdall.

APPENDIX 3.

CAUSES OF, AND AGES AT DEATH DURING THE YEAR 1919.

CAUSES OF DEATH.	NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.								TOTAL DEATHS WHETHER OF "RESIDENTS" OR "NON-RESIDENTS" IN INSTITUTIONS IN THE DISTRICT.
	All ages.	Under 1 year.	1 and under 2 years.	2 and under 5 years.	5 and under 15 years.	15 & under 25 years.	25 & under 45 years.	45 & under 65 years.	
All causes { Certified	1130	179	58	67	76	61	174	260	146
Uncertified } ...	24	5	..	..	1	..	..	10	2
Enteric Fever
Small-pox
Measles	...	12	..	6	5	1	..	..	..
Scarlet Fever	...	8	..	1	4	3	..	..	13
Whooping Cough	...	2	1	..	1	..	..	..	..
Diphtheria and Croup	...	16	1	2	5	8	..	..	20
Influenza	...	116	3	5	7	10	14	35	15
Erysipelas
Phthisis (Pulmonary Tuberculosis)	...	80	1	1	..	6	16	33	18
Tuberculous Meningitis	...	13	1	1	4	2	3	2	1
Other Tuberculous Diseases	...	17	2	1	5	2	2	4	2
Cancer, malignant disease	...	80	..	..	..	..	11	46	23
Rheumatic Fever	...	5	..	..	..	3	1	1	..
Meningitis	...	13	2	4	3	2	2	..	1
Organic Heart Disease	...	73	..	1	..	4	3	16	30
Bronchitis	...	88	14	3	5	..	1	4	23
Pneumonia (all forms)	...	171	32	21	16	12	11	26	34
Other diseases of respiratory organs	...	20	2	2	4	1	..	3	6
Diarrhoea and Enteritis	...	41	32	4	1	..	1	1	2
Appendicitis and Typhlitis	...	5	..	..	..	1	2	1	1
Cirrhosis of Liver	...	5	..	..	..	..	..	4	..
Alcoholism
Nephritis and Bright's Disease	...	21	..	..	..	3	..	6	8
Puerperal Fever	...	2	..	..	..	..	2	..	..
Other accidents and diseases of Pregnancy and Parturition	...	5	..	..	..	..	5	..	1
Congenital Debility and Malformation, including Premature Birth	...	64	63	1	..	..	..	..	1
Violent Deaths, excluding Suicide	...	46	..	1	3	9	3	10	12
Suicide
Other Defined Diseases	...	239	28	3	4	8	2	14	55
Diseases ill-defined or unknown	...	12	2	1	..	2	..	5	2
Totals		1154	184	58	67	77	61	174	270
								263	148

SUB-ENTRIES INCLUDED IN ABOVE FIGURES.

Cerebro-spinal Fever	...	..	..	..	..	..	..	..	..
Poliomyelitis	...	..	..	..	..	..	..	..	..
Broncho-pneumonia	...	91	27	14	11	8	2	7	11
Veneral Diseases	...	2	1	..	..	..	..	1	..
Cerebral Haemorrhage	...	37	..	..	..	..	..	15	22
Arterio-Sclerosis	...	20	..	..	..	..	..	6	14
Senile Decay	...	45	..	..	..	..	..	2	43
Tetanus	...	..	..	..	..	..	..	..	..
General Paralysis of Insane	...	3	..	..	..	..	3	..	..
Aneurism	...	..	..	..	..	..	..	..	..
Locomotor Ataxy	...	..	..	..	..	..	..	..	..

Deaths of members of His Majesty's Forces are not included in this table.

INFANT MORTALITY.

1919. Nett Deaths from stated causes at various Ages under 1 Year of Age.

CAUSE OF DEATH.		Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	Total under 4 weeks.	4 weeks and under 3 months.	3 months and under 6 months.	6 months and under 9 months.	9 months and under 12 months.	Total Deaths under One Year.	
All Causes	Certified { Uncertified	41	9	8	5	63	38	29	31	18	179	
		4	1	—	—	5	—	—	—	—	5	
Small-pox	—	
Chicken-pox	—	
Measles	—	
Scarlet Fever	—	
Whooping Cough	—	
Diphtheria and Croup	—	
Erysipelas	—	
Tuberous Meningitis	—	
Abdominal Tuberculosis	—	
Other Tuberculous Diseases	—	
Meningitis (not <i>Tuberculosis</i>)	—	
Convulsions	—	
Laryngitis	—	
Bronchitis	—	
Pneumonia (all forms)	—	
Diarrhoea	—	
Enteritis	—	
Gastritis	—	
Syphilis	—	
Rickets	—	
Suffocation, overlying	—	
Injury at Birth	—	
Atelectasis	—	
Congenital Malformations	—	
Premature Birth	—	
Atrophy, Debility and Marasmus	—	
Other Causes	—	
Totals		45	10	8	5	68	38	29	31	18	184	
Nett Births in the year { legitimate infants ... 1,854 illegitimate infants... 60		Nett Deaths in the year { legitimate ... 175 illegitimate... 9										

APPENDIX 5.

APPROXIMATE VITAL STATISTICS OF EACH WARD IN 1919 AND PREVIOUS YEARS.

YEAR	THE WHOLE BOROUGH		DERBY WARD		STANLEY WARD		MERSEY WARD		KNOWSLEY WARD		LINACRE WARD		ORRELL WARD																																														
	Deaths under 1 year	Deaths at all Ages	Population esti- mated to middle of each year	Deaths under 1 year	Deaths at all Ages	Population esti- mated to middle of each year	Deaths under 1 year	Deaths at all Ages	Population esti- mated to middle of each year	Deaths under 1 year	Deaths at all Ages	Population esti- mated to middle of each year	Deaths under 1 year	Deaths at all Ages																																													
1909	68,120	2,138	1,149	253	13,664	415	228	51	11,324	257	42	12,273	394	295	73	12,321	372	205	48	15,037	541	231	46	3,501	139	47	7																																
1910	69,122	2,016	1,019	249	14,124	441	196	57	11,348	294	123	12,149	350	237	65	12,314	365	200	39	15,455	498	223	53	3,732	138	40	17																																
1911	70,130	2,093	1,283	368	14,590	136	219	49	1,370	247	196	39	12,021	391	278	61	12,307	356	275	76	15,876	25	266	68	3,966	133	49	15																															
1912	71,152	2,093	1,183	232	15,060	430	214	47	1,391	224	153	24	11,893	386	301	65	12,301	397	251	50	16,302	504	224	33	4,202	152	36	10																															
1913	72,186	2,146	1,265	316	16,265	449	209	49	11,318	238	159	33	11,766	365	272	73	12,295	395	280	75	16,372	501	285	64	4,440	178	60	22																															
1914	73,230	2,304	1,242	286	16,016	408	183	34	11,443	261	168	28	11,633	391	252	58	12,288	407	303	71	17,168	364	278	71	4,682	175	68	24																															
*1915	71,617	2,031	1,286	292	15,663	378	197	45	11,191	211	176	19	11,377	356	275	72	12,017	409	293	70	16,790	514	280	70	4,579	163	65	16																															
*1916	71,135	2,047	1,279	227	15,558	407	204	45	11,115	246	183	27	11,300	339	263	42	11,937	440	308	69	16,677	513	276	36	4,548	160	45	8																															
*1917	68,871	1,853	1,213	187	15,062	355	195	26	10,761	217	179	22	10,940	320	243	40	11,557	374	293	44	16,147	410	250	44	4,404	147	53	11																															
*1918	73,500	1,781	1,429	210	16,075	312	238	34	11,485	206	173	24	11,676	328	291	34	12,333	390	305	47	17,232	404	331	53	4,699	141	91	18																															
Nos. .		70,306		2,050		1,235		256		15,135		403		208		44		11,285		164		26		11,703		362		271		59		12,167		399		271		59		16,342		495		205		54		4,275		155		55							
AVERAGE.		Rates		..		17.4		125		..		137		109		..		14.5		110		..		23.2		163		..		22.3		148		..		16.2		109		..		12.9		97															
1916		Total		80,172		1,863		1,154		184		16,833		369		180		20		12,026		205		188		19		12,226		332		238		40		12,914		384		239		53		18,043		425		244		40		4,420		148		65		12	
AVERAGE.		Nos. .		76,962		23.2		15.0		96		..		21.4		10.7		54		16.4		15.6		33		..		26.1		19.5		120		..		28.5		18.5		138		..		22.6		13.5		94		..		28.9		11.2		81			

† These totals do not include 27 births in 1911, 36 in 1912, 20 in 1913, 17 in 1914, 19 in 1915, 29 in 1916, 20 in 1917, 29 in 1918, and 51 in 1919. The wards in which the mothers resided are not known.

* The figures relating to births and deaths are accurate, but the estimated populations are probably inaccurate.

The birth-rates are calculated on the estimated populations of 74,285, 77,396, 76,772, 80,500 and 80,172 for 1915-16, 17-18 and 19 respectively.

APPENDIX 6.

WATER ANALYSES.

	Vyrnwy Inlet	Rivington Inlet.	Green Lane Well.	as supplied to Bootle Parts per 100,000	Mixed Water Town Hall*
Total solid matter in solution	... 3.12	7.92	35.78	3.8	
Oxygen required to oxidise—					
In 15 minutes	... 0.073	0.004	none	0.122	
In three hours	... 0.133	0.007	none	0.189	
Ammonia	... 0.001	0.001	none	0.001	
Ammonia from organic matter (by distillation with alkaline per- manganate)	... 0.002	0.001	none	0.004	
Nitrogen at Nitrates	... none	none	0.54	none	
Combined Chlorine	... 0.75	1.25	3.55	0.9	
Hardness	... 1.01	3.55	19.11	1.95	

* This sample was taken some months before the others.

APPENDIX 7.

SUMMARY OF WORK DONE BY THE INSPECTOR OF NUISANCES
AND HIS ASSISTANTS.

NUISANCES.

No. of complaints made by inhabitants	...	...	...	...	...	1,710
,, nuisances discovered	...	...	...	...	...	2,196
Notices to owners—						
Choked and defective drains	...	...	...	...	...	531
Choked and defective downspouts and rain gutters	...	...	...	...	...	417
Defective roofs	...	...	...	...	...	566
Defective yard surfaces	...	...	...	...	...	155
Defective water pipes	...	...	...	...	...	174
Notices served on occupiers—						
Overcrowding in rooms	...	...	...	...	...	20
Dirty conditions	...	...	...	...	...	82
Removing fowls and other animals	...	...	...	...	...	13
Removing manure	...	...	...	...	...	8
Removing rubbish from water closets	...	...	...	...	...	1
Non-separation of sexes	...	...	...	...	...	7
No. of re-inspections of nuisances	...	...	...	...	...	7,952
,, defective ashbins renewed	...	...	...	...	...	60
,, informations laid	...	...	...	...	...	11
No. withdrawn on payment of costs owing to abatement of nuisance						8
No. of Magistrates' Orders obtained	...	...	...	...	...	3
Amount of Fines and Costs	...	...	...	...	...	£3/6/6

CINEMATOGRAPH SHOWS.—There are six picturedromes in the town, and they received 47 inspections.

CANAL BOATS AND CATTLE SHIPS.

No. of canal boats inspected in 1919	...	...	...	...	...	128
,, infringements re certificates	...	...	...	...	...	4
,, other defects	...	...	...	...	...	5
,, notices sent in respect of same	...	...	...	...	...	9
,, cattle ships inspected	...	...	...	...	...	3

COMMON LODGING HOUSES.

No. registered under the Public Health Act	...	...	...	...	...	3
No. of inspections	...	...	...	...	...	156
,, informations laid in respect of infringements	...	...	...	...	...	—

SUB-LET HOUSES.

No. of inspection by male inspectors	...	...	...	...	...	395
,, inspections by female inspectors	...	...	...	...	...	2,355
,, infringements of Bye-laws relating to sub-let houses	...	...	...	...	...	18
,, informations laid	...	...	...	...	...	2
Amount of fines and costs	...	...	...	...	...	nil.

STEPS TAKEN TO PREVENT NUISANCE FROM SMOKE.

No. of observations made	...	...	...	...	...	123
,, intimations sent	...	...	...	...	...	13
,, notices served in respect of excessive black smoke	...	...	...	...	...	27
,, informations laid	...	...	...	...	...	2
Amount of fines and costs	...	...	...	...	...	£1/3/0

DAIRIES, COWSHEDS, AND MILKSHOPS.

No. of milkshops on register	...	...	...	...	...	35
,, shippons with dairies attached	...	...	...	...	...	27
,, inspections made—shippons, 244; milkshops 438	...	...	...	...	...	682

The occupiers of shippons and milkshops have from time to time been verbally cautioned with regard to the cleanliness of the premises and the cows, and the proper storage of milk.

FOOD INSPECTIONS.

No. of visits to foodshops	...	...	...	...	...	4,344
Amount of food seized (see page 22).	...	...	...	...	...	—
No. of inspections of hawkers' carts	...	...	...	...	...	32
No. of inspections of food factories	...	...	...	...	...	292

SUMMARY OF LEGAL PROCEEDINGS.

Defective drains, etc.	...	...	...	...	...	...	11
Infringements of Sale of Food and Drugs Acts	...	...	...	...	...	...	13
Smoke nuisances	...	...	...	...	...	...	2
Common lodging houses	...	...	...	...	...	...	—
Sub-let houses	...	...	...	...	...	...	—
Unsound food	...	...	...	...	...	...	—

DISINFECTION : INFECTIOUS DISEASES.

No. of houses disinfected after notifiable infectious diseases	...	...	501
,, houses disinfected after phthisis	...	...	201
,, schools disinfected after measles	...	...	2
,, visits made to infected houses	...	...	602
,, re-visits made to infected houses	...	...	1,410
,, houses cleaned in default of or at request of owners	...	...	54
,, houses disinfected for causes other than fevers	...	...	31

All houses assessed at £13 per annum or less are cleaned after infectious disease (i.e., the walls stripped and the ceilings whitened), by the Corporation at their own cost; in case of Phthisis the Corporation strip, when necessary, whatever the rent.

FILTHY HOUSES.

No. of houses reported	...	...	...	...	...	...	28
,, intimations sent	...	...	...	...	...	...	28
,, houses cleansed	...	...	...	...	...	...	27

The remaining house was cleansed early in 1920.

LIST OF ARTICLES DISINFECTED.

			Bootle.	Formby.	Totals
Palliasses	...	...	293	21	314
Mattresses	...	...	493	19	512
Beds	...	...	560	23	583
Bolsters and Pillows	...	...	2,243	93	2,336
Blankets	...	...	1,317	47	1,364
Quilts	...	...	895	28	923
Sheets	...	...	721	29	750
Carpets	...	...	81	3	84
Wearing Apparel	...	...	2,267	72	2,339
Miscellaneous Articles	...	...	1,446	153	1,599
			<hr/>	<hr/>	<hr/>
			10,316	488	10,804
			<hr/>	<hr/>	<hr/>

NOTE.—These figures do not include the ambulance bedding (one bed, one pillow, and three blankets), which is disinfected after the removal of each case.

One hundred and thirty-eight library books were disinfected.

The following articles were destroyed, at the request of the owners, after infectious diseases:—

Palliasses, 5; Mattresses, 10; Beds, 11; Bolsters and Pillows, 7; Miscellaneous, 2.

FLUSHING.

The flushing gang consists of two Corporation Workmen and a Liverpool Waterman. A second gang was employed during two and a half months of the year.

No. of private houses at which drains were flushed	...	...	...	10,953
,, passage sewers flushed	...	...	...	665
,, public buildings at which drains were flushed	...	...	...	52

The drains at the Bootle Borough Hospital were flushed 13 times during the year.

The amount of fresh water used during the year was 3,235,960 gallons. The amount of salt water used was 57,500 gallons.

APPENDIX 8.

FACTORY AND WORKSHOP ACT, 1901.

Factories, Workshops, Laundries, Workplaces, and Homework.

1.—INSPECTION.

Including inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
Factories (including Factory Laundries) ...	295	1	—
Workshops (including Workshop Laundries) ...	708	6	—
Workplaces (other than Outworkers' Premises included in Part 3 of this Report) ...	260	1	—
Totals	1,263	8	—

2.—DEFECTS FOUND.

Particulars.	Number of Defects			Number Referred to H.M. Inspector.	Number of Prosecutions.
	Found.	Remedied.	Inspected.		
Nuisances under the Public Health Acts—					
Want of Cleanliness ...	49	49	—	—	—
Want of ventilation ...	—	—	—	—	—
Overcrowding ...	1	1	—	—	—
Want of drainage of floors ...	—	—	—	—	—
Other nuisances ...	8	8	—	—	—
Sanitary Accommodation—					
Insufficient ...	—	—	—	—	—
Unsuitable or defective ...	—	—	—	—	—
Not separate for sexes ...	1	1	—	—	—
Offences under the Factory and Workshop Act—					
Illegal occupation of underground bakehouses (S.101) ...	—	—	—	—	—
Breach of special sanitary requirements for (S.S. 97 to 100) ...	—	—	—	—	—
Other Offences—					
(Excluding offences relating to outwork which are included in Part 3 of this Report) ...	—	—	—	—	—
Totals	59	59	—	—	—

3.—HOME WORK.

Nature of Work—Wearing Apparel—

1. Making, etc., Dungaree Overalls, Men's and Women's Underclothing, Dressmaking, Tailoring, and Boot Repairing.

2. Cleaning and Washing.

Outworkers, Lists, Section 107—

Lists received from Employers—

				Outworkers.	
				Lists.	Contractors. Workmen.
Twice in the year	...	...	...	6	2
Once in the year	...	...	...	—	—
Number of addresses of Outworkers received from other Councils				...	16
Number of addresses of Outworkers forwarded to other Councils				...	4
Notices served on Occupiers as to keeping or sending lists				...	—
Prosecutions—					
Failing to keep or permit inspection of Lists				...	...
Failing to send Lists	...	...	...	...	—
Number of Inspection of Outworkers' Premises				...	...
Outwork in Unwholesome Premises, Section 108				...	64
Instances	...	...	...	...	—
Notices served	...	...	...	...	—
Prosecutions	...	...	...	...	—
Outwork in Infected Premises, Sections 109 and 110				...	—
Instances	...	...	...	...	—
Order made (S. 110)	...	...	...	...	—
Prosecutions (S.S. 109 and 110)	...	...	...	...	—

4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the year—	No.
Bakehouses	34
Confectionery Bakehouses	20
Workshops and Workplaces	120
Outworkers' Premises	16
Total number of workshops on Register	190

5.—OTHER MATTERS.

Class.	No.
Matters notified to H.M. Inspector of Factories—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133) ...	1
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5)—	
Notified by H. M. Inspector ...	—
Reports (of action taken) sent to H.M. Inspector ...	—
Other ...	—
Underground Bakehouses (S. 101)—	
Certificates granted during the year (renewed) ...	15
In use at the end of the year ...	13

BAKEHOUSES.

The number of bakehouses now on the register is 54, and to these 286 visits were made during the past year.

Twelve notices had to be issued because of neglect to perform the necessary line-washing.

FACTORY AND WORKSHOP ACT.

WORKSHOPS AND WORKPLACES (excluding Bakehouses).

FACTORIES.

No. of visits and re-visits 295
 , with insufficient or unsuitable sanitary accommodation ... —
 , referred to Borough Engineer —

BAKEHOUSES.

No. on register	...	...	...	...	...	...	...	34
No. of visits and re-visits made	...	...	...	...	...	...	...	178
,, bakehouses found dirty (walls and ceilings and floors)	...							20
,, Notiees issued for limewashing	...	...	...	...	...	...		12
,, notices issued for dirty yard surfaces	...	...	...	...	...	...		1
,, bakehouses closed	...	...	...	...	...	...	...	2

CONFECTIONERY BAKERIES.

No. on register	...	...	...	...	...	...	...	20
No. of visits and re-visits made	...	...	...	...	...	...	...	16
No. found dirty (walls and ceilings)	...	...	...	...	...	...	...	6
No. of notices issued for limewashing	...	...	...	...	...	...	...	6

OUTWORKERS.

Outworkers employed in Bootle for Liverpool, Birkenhead and Litherland firms—

Tailors or Tailoresses	...	...	...	...	...	...	...	3
Dressmakers	...	...	...	...	...	...	...	8
Boot Repairers	...	...	...	...	...	...	...	3
Laundresses	...	...	...	...	...	...	...	2

Outworkers employed in Liverpool for Bootle firms—

Boot Repairers 2

APPENDIX 9.

SALE OF FOOD AND DRUGS ACTS.

SAMPLES TAKEN, 1919.

	Total Number of Samples Analysed	Number re- ported to be adulterated or not up to standard	Number of Prosecutions	Number of Convictions	Remarks
Milk	109	22	7	7	In the 15 cases not pro- ceeded with, the de- ficiency was so small as not to warrant prosecu- tion.
Baking Powder	9	...	...	...
Margarine	9	...	3	3	see page 24
Dripping	8	6	3	3	" " "
Self-raising Flour	8	...	...	...
Butter	7	...	...	...
Vinegar	6	3	...	...	" " "
Pepper	5	...	...	...
Lard	5	...	...	...
Rice	4	1	...	...	" " "
Cocoa	2	...	...	...
Oil & Fat Compound	2	...	...	...
Castor Oil	2	...	...	...
Lemonade	2	...	...	...
Sarsaparilla	2	...	...	...
Liquorice Powder	2	...	...	...
Cheese	2	...	...	...
Jam	2	...	...	...
Potted Shrimps	1	...	...	...
Honey	1	...	...	...
Sago	1	...	...	...
Lime Juice Cordial	1	...	...	...
Ginger Beer	1	...	...	...
Barm Beer	1	...	...	...
Burdock Stout	1	...	...	...
Milk Puddings	1	...	...	...
Mustard	1	...	...	...
Bun Flour	1	...	...	...
Epsom Salts	1	...	...	...
Seidlitz Powders	1	...	...	...
Egg Powder	1	...	...	...
Syrup	1	...	...	...
Treacle	1	...	...	...
Totals	201	32	18	13	

APPENDIX 10.
DEATHS FROM ZYMOtic DISEASES.

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average for 10 years 1909-1918
Small Pox ...	—	—	1	—	—	—	—	—	—	—	—	0.1
Scarlet Fever ...	16	6	5	1	4	4	7	4	4	22	8	7.3
Diphtheria ...	10	6	11	8	4	9	9	10	13	21	16	10.1
Measles ...	68	22	21	62	33	39	14	17	27	8	12	31.1
Whooping Cough ...	3	32	22	16	37	14	57	19	32	25	2	25.7
Enteric Fever ...	2	2	3	1	1	1	3	—	1	3	—	1.7
Typhus Fever ...	3	—	—	—	—	—	—	—	—	—	—	0.3
Diarrhoea and Enteritis	79	77	144	40	106	102	93	93	40	53	41	82.7
Totals ...	181	145	207	128	185	169	183	143	117	132	79	159.0
Rate per 1,000 of the population ...	2.65	2.09	2.95	1.79	2.56	2.31	2.56	2.01	1.69	1.8	1.03	2.24

APPENDIX 11.
NOTIFICATIONS OF INFECTIOUS DISEASES.

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average for 10 years 1909-1918
Population ...	68,120	69,122	70,130	71,152	72,186	73,230	71,617	71,135	68,871	73,500	76,962	70,906
Smallpox ...	—	—	1	—	—	—	—	—	—	—	8	0.1
Scarlet Fever ...	397	288	238	189	150	192	269	177	190	343	353	243
Diphtheria ... (including Croup)	64	51	85	58	39	61	74	75	94	123	168	73
Typhus Fever ...	2	—	—	—	—	—	—	—	—	—	—	0.2
Continued Fever ...	—	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever ...	15	12	16	11	12	7	16	4	3	7	5	10.3
Puerperal Fever ...	4	2	5	2	3	4	3	5	1	1	6	3.0
Erysipelas ...	36	26	33	33	35	36	42	27	18	22	19	30.8
Pulmonary Tuberculosis ...	150	123	188	186	295	257	230	234	205	176	150	204
Other form of Tuberculosis ...	—	—	—	—	80	68	89	90	62	52	53	—
Ophthalmia Neonatorum ...	—	—	—	—	—	31	19	38	47	33	40	—
Cerebro-spinal Meningitis ...	—	—	—	1	—	—	2	2	1	2	1	—
Poliomyelitis ...	—	—	—	3	—	—	1	3	1	1	—	—
Influenza ...	—	—	—	—	—	—	—	—	—	—	—	—
Pneumonia ...	—	—	—	—	—	—	—	—	—	—	55	—
Acute Primary Pneumonia ...	—	—	—	—	—	—	—	—	—	—	36	—
Trench Fever ...	—	—	—	—	—	—	—	—	—	—	1	—
Malaria ...	—	—	—	—	—	—	—	—	—	—	8	—
Encephalitis lethargica ...	—	—	—	—	—	—	—	—	—	—	1	—
Measles and German Measles ...	—	—	—	—	—	—	—	1410	1163	680	455	—

APPENDIX 12.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912.

Summary of Notifications received during 1919.

Notifications on Form A.

AGE-PERIODS	Number of Primary Notifications										Total Notifications on Form A.
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 and upwards	
Pulmonary, Males ...	...	1	5	3	11	18	20	16	8	4	88
", Females	...	1	5	10	10	5	13	6	3	2	55
Non-pulmonary, Males ...	1	4	5	1	3	1	2	1	1	1	20
", Females ...	...	5	3	5	3	2	2	...	...	1	22

AGE-PERIODS	Number of Primary Notifications										Number of Notifications on Form C.
	Under 5	5 to 10	10 to 15	15 to 20	20 and upwards	Total Primary Notifications	Total Notifications on Form B.	Poor Law Institutions	Sanatoria		
Pulmonary, Males ...	...	...	1	2	2	3	3	5	5	73
", Females	...	...	2	1	1	4	4	...	...	34
Non-pulmonary, Males ...	1	1	1	1	1	3	3	3	1	1	
", Females ...	...	2	2	1	1	7	9	9	2	2

APPENDIX 13.

SLEEPING ACCOMMODATION OF NOTIFIED CASES OF PULMONARY TUBERCULOSIS.

The following table gives particulars of the isolation, or lack of it, of patients suffering from pulmonary tuberculosis at the time of notification, and after visitation by the Tuberculosis Officer or Visitors.

	On first visit.			Afterwards.	
No. who occupied a separate bedroom	...	52		81	
No. who occupied a separate parlour alone	...	—		—	1
No. who occupied a separate bed in a room occupied by:—					
1 other person	3	6
2 other persons	4	7
3 other persons	3	1
Many other persons (common lodging house)	1	1
No. who occupied a bed in common with—					
1 other person	52	33
2 other persons	17	8
3 other persons	7	5
Two beds in room—					
Two persons in each bed	6		3
Three persons in each bed	3		2
Kitchen alone	2		2
			—	—	—
Totals	150	150	—
			—	—	—

In thirty-four unnotified cases (the source of knowledge being the death returns), 12 occupied prior to death a separate room, 7 slept with one other person, 1 with two other persons, and in 13 cases the information was unobtainable.

APPENDIX 14.

MAGHULL SANATORIUM.

The following table gives particulars of the 88 cases admitted during 1919.

AGES	BOOTLE				Lancashire County Council		Seamen's National Insurance Society	Totals		
	Males		Females		Males	Females				
	Insured	Non-insured	Insured	Non-insured						
10—15 years	...	...	...	5	1	...	...	6
15—20 „	5	2	...	1	...	...	2	10
20—25 „	10	1	1	...	1	2	1	16		
25—30 „	8	...	2	6	1	3	4	24		
30—35 „	5	...	...	...	...	1	4	10
35—40 „	3	1	...	1	1	...	5	11		
40—45 „	1	...	1	...	1	1	1	5		
45 and over	3	1	...	...	...	...	2	6
	35	5	4	13	5	7	19	88		
	57				12					

APPENDIX 15.

LINACRE HOSPITAL.

Pulmonary Tuberculosis: Cases admitted during 1919.

AGES	BOOTLE				Lancashire County Council		Seamen's National Insurance Society	Totals		
	Males		Females		Males	Females				
	Insured	Non-insured	Insured	Non-insured						
5—10 years	...	1	...	1	...	...	...	2
10—15 „	2	...	2	...	...	1	...	5
15—20 „	6	1	3	4	...	...	...	14
20—25 „	11	...	1	1	...	2	...	15		
25—30 „	2	...	4	2	...	...	2	10
30—35 „	6	...	...	2	...	...	2	10
35—40 „	3	...	1	2	...	1	2	9		
40—45 „	3	...	...	...	...	1	3	7
45 and over	4	1	...	...	...	...	3	8
	35	5	9	14	...	5	12	80		
	63				5					

Deaths:—Bootle 7; Lancashire County Council 3.

APPENDIX 16.

VENEREAL DISEASES TREATMENT CENTRE. COPY OF REPORT BY DR. CLEMMEY.

JANUARY, 1919—JANUARY, 1920.

TABLE I.

	Syphilis.		Soft Chancre.		Gonorrhœa.		Conditions other than Venereal.		TOTAL.		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
1. Number of persons who, on the 1st January, 1919, were under treatment or observation for :—	30	30	5	Nil	18	Nil	—	—	53	30	
Syphilis and Gonorrhœa ...	4	—	—	—	—	—	—	—	4	—	
2. Number of persons dealt with during the year at or in connection with the out-patient Clinic for the first time and found to be suffering from :—											
Syphilis only ...	208	37	—	—	—	—	—	—	208	37	
Soft chancre only ...	—	—	—	—	—	—	—	—	—	—	
Gonorrhœa only ...	—	—	—	—	249	5	—	—	249	5	
§Syphilis and soft chancre ...	§39	—	39	—	—	—	—	—	39	—	
§Syphilis and Gonorrhœa ...	§7	—	—	—	7	—	—	—	7	—	
§Gonorrhœa and soft chancre ...	—	—	1	1	§1	§1	—	—	1	1	
§Syphilis, soft chancre and gonorrhœa ...	—	—	—	—	—	—	—	—	—	—	
Conditions other than venereal ...	—	—	—	—	—	—	49	1	49	1	
	TOTAL ...	242	67	45	1	274	5	49	1	610	74
3. Number of persons who ceased to attend the out-patient Clinic (a)—before completing a course of treatment for :—	6	—	6	—	29	4	—	—	41	4	
(b)—after completion of a course of treatment, but before final tests as to cure of :—	99	22	15	—	50	—	—	—	164	22	
4. Number of persons transferred to other Treatment Centres after treatment for :—	1	—	—	—	—	—	49	1	50	1	
5. Number of persons discharged* from the out-patient Clinic after completion of treatment and observation for :—	45	20	—	1	111	—	—	—	156	21	
6. Number of persons who, on 1st January, 1920, were under treatment or observation for :—	§1	—	—	—	1	—	—	—	§1	—	
	91	25	§1	—	81	1	—	—	199	26	
	§24	—	24	—	1	—	—	—	—	—	
	§1	—	—	—	1	—	—	—	—	—	
Totals—Items 3, 4, 5 and 6 ...	242	67	45	1	274	5	49	1	610	74	
7. Total attendees of all persons at the out-patient Clinic who were suffering from :—	20	—	§20	—	§20	—	—	—	—	—	
	1882	707	317	13	1681	12	85	—	1	4085	
8. Aggregate number of "In-patient days" of treatment to persons who were suffering from :—	100	9	—	—	§100	§9	—	—	—	—	
	184	301	—	—	17	—	—	—	—	301	
9. Examinations of Pathological material :—											
(a) Specimens which were examined at, and by the Medical Officer of, the Treatment Centre ...	... ...	... ...	... ...	... ...	Nil	6	Nil	Nil	Nil	Nil
(b) Specimens from persons attending at the Treatment Centre which were sent for examination to an approved laboratory					Nil	Nil	Nil	Nil	165		

* The number of persons suffering from two or more venereal diseases should be entered under the heading of each disease in the vertical column.

* No patient should be discharged until, in the opinion of the Medical Officer, he has ceased to be infectious.

Nil. In the absence of any patient having a record of at least three negative Wassermann reactions over a two yearly period.

TABLE II.

Statement showing the services rendered at the Treatment Centre during the year, classified according to the areas in which the patients resided.

Name of County or County Borough (or Country in the case of persons residing elsewhere than in England and Wales).	Bootle.	Liverpool.	Lancs.	Cheshire.	Birkenhead.	S. S. Uruguay	Cardiff.	Dublin	Other Localities as per attached list	Total.
A. Number of persons from each area dealt with during the year at or in connection with the out- patient Clinic for the first time and found to be suffering from :—										
†Syphilis 139 45 37 — 2 — — — 21 244										
,, and soft chancre ... 21 7 6 — — — — — — 5 39										
,, „ gonorrhœa ... 2 3 — — — — — — — 2 7										
†Gonorrhœa 132 59 40 1 3 — — — 19 254										
,, and chancre ... 1 1 — — — — — — — — 2										
,, chancre and syphilis — 1 — — — — — — — — 1										
Conditions other than venereal 29 13 5 1 1 — — — — 1 50										
	TOTAL ... 324 129 88 2 6 — — — 48 597									
B. Total number of attendances at the out-patient Clinic of all patients residing in each area .. 2961 1003 668 18 51 — — — 126 4827										
C. Aggregate number of "In-patient days" of all patients residing in each area 882 6 2 — 65 29 11 7 — 502										
D. Number of doses of Salvarsan substitutes given in the :—										
1. Out-patient Clinic 853 207 177 — 6 — — — 49 1292										
2. In-patient Dept. 4 — — — — — — — — 4										
to patients residing in each area										
E. Give the names of Salvarsan sub- stitutes used in the treatment of syphilis and the usual initial and final doses.	Neokharsivan } Novarsenobillon }	From	0.45 grms.							
		to	0.9 „							
F. State the number of doses of Sal- varsan substitutes usually given in a full course of treatment.	Six.									
G. State in what proportion of cases, approximately, Salvarsan substi- tutes are used in the treatment of syphilis.	All.									
H. State the nature of tests applied in deciding as to discharge of patients referred to in Item 5 on previous page.	Repeated negative Wassermann tests.									

† If a person has been treated for both syphilis and gonorrhœa, he should be included under both diseases, and similarly for other combinations of venereal diseases.

20th January, 1920.

W. N. CLEMMEY,

Medical Officer of the Treatment Centre.

PLACE OF RESIDENCE OF THE PERSONS FROM OTHER
LOCALITIES WHO MADE 126 ATTENDANCES AT
THE TREATMENT CENTRE FOR VENEREAL DISEASES.

		Syphilis		Syphilis and Chancre		Syphilis and Gonorrhœa		Gonorrhœa		Not Venereal		Injections		Attendances
			Patients.											
Chili	...	...	1									5		5
Denmark			1									1		1
Paisley	...	...	1									4		5
Flint	...	...	1									1 [*]		1
Sunderland			1									1		3
Hull	...	...	1									1		2
Middlesex			1									1		1
Glasgow			2									2		4
U. S. A.	...		3	1		1			10			9		29
Russia	...		1									1		1
Sweden			1									3		3
Japan			1									1		1
Newmarket			1									1		1
Cardiff			1									1		1
Horwich			1									1		1
Hampshire			1									1		1
Salford			1									1		2
Plymouth			1									1		1
Nova Scotia			—	1								11		11
West Indies			—	1								4		5
Holyhead			—	1								6		22
Holland			—	1								—		2
London			—	—	1			1				—		5
Newcastle			—	—	—	1			1			—		1
Widnes			—	—	—	—	1			1		—		2
Oldham			—	—	—	—	—	1				—		8
Stockport			—	—	—	—	—	1				—		2
Pwllheli			—	—	—	—	—	1				—		2
Bermuda			—	—	—	—	—	1				—		2
Conway			—	—	—	—	—	—	1			—		1
Totals	...	21	5	2	19	1	49	126						

APPENDIX 17.

VENEREAL DISEASES SCHEME.

Annual Return of Pathological Examinations made during the year ended on the 31st December, 1919.

				No. of Tests
(a) At the University of Liverpool—				
For detection of spirochaetes—	For Treatment Centre	...	...	—
	For Practitioner	...	...	1
For detection of gonocoeci—	For Treatment Centre	...	...	—
	For Practitioner	...	...	1
For Wasserman reaction—	For Treatment Centre	...	...	190
	For Practitioner	...	...	51
(b) At Linacre Hospital—				
For detection of gonococci—	For Treatment Centre	...	...	28
	For Practitioners	...	...	1
				272

APPENDIX 18.

WORK DONE BY THE INFANT WELFARE VISITORS.

APPENDIX 19.

ANTE-NATAL CLINIC.

JANUARY 1st, 1919, TO DECEMBER 31st, 1919.

ANTE-NATAL CLINIC.

JANUARY 1st, 1919, TO DECEMBER 31st, 1919.

	Total.	Normal Labour	Ceased Attending.	Not yet Delivered.	Difficult Labour.	Remarks.
Primigravidae for measurements						
Pelvis normal	38	17	12	6	—	3 Prem. still-born.
Pelvis contracted	7	3	—	4	—	
Multigravidae with history of dystocia—						
Pelvis normal	5	4	1	—	—	
Pelvis contracted	6	3	1	—	1	1 still-born, left district
Repeated still-birth, abortion, or premature labour—						
Wasserman, positive	12	5	5	—	—	1 lived few days. 1 abortion.
,, negative ...	5	3	—	1	—	1 abortion.
Leucorrhœa—						
Gonorrhœal	2	1	—	—	—	1 Foetus neg.; Wass. pos.
Not Gonorrhœa	7	5	1	1	—	
Confirmation of fact or period of pregnancy	14	6	3	4	1	
Leucoplakia	1	1	—	—	—	
Oedema + Albuminuria	2	2	—	—	—	
,, urine normal	1	1	—	—	—	
Chronic Nephritis and frequent micturition	2	2	—	—	—	
Reputed Oedema absent, and urine normal	1	1	—	—	—	
Ante-partum Haemorrhage ...	2	—	—	1	—	1* * Prem.; lived few hours.
Varicose Veins	12	8	1	3	—	
Examination after abdominal operation	1	1	—	—	—	
Prolapsus uteri, etc.	3	3	—	—	—	
Gastro-intestinal, anaæmia, debility	37	19	11	5	1	1 Mental, died.
Bronchitis	8	4	1	3	—	
Asthma	1	1	—	—	—	
Tubercular glands in neck ...	1	1	—	—	—	
	<hr/> Total	<hr/> 168	<hr/> 91	<hr/> 36	<hr/> 28	<hr/> 4
						<hr/> 9

Not Pregnant—

Signs or symptoms suggesting pregnancy	24
Post-partum Debility	1
Repeated Still-births and Abortion—	
Wasserman +	1
,, —	2
	<hr/> 28

R. A. HENDRY,

Medical Officer.

APPENDIX 20.

CASES TREATED IN THE INFECTIOUS DISEASES HOSPITAL,
LINACRE, DURING THE YEAR 1919.

Patients in Hospital on January 1st, 1919.

			Scarlet Fever	Diphtheria	Phthisis	Totals
Bootle	...	...	11	8	6	25
Litherland	...	...	4	3	...	7
Formby	...	...	...	2	...	2
Seamen's National Insurance Society	...	...	...	...	3	3
Lancashire County Council	...	...	...	...	3	3
		Totals	15	13	12	40

Scarlet Fever: Cases admitted. —

AGES.	BOOTLE		LITHERLAND		FORMBY		Totals	Deaths
	Males	Females	Males	Females	Males	Females		
1—2 years	1	3	1	1	...	...	6	2
2—3 ,,	3	4	2	4	...	...	13	2
3—4 ,,	8	9	2	2	...	...	21	2
4—5 ,,	12	18	6	3	..	...	39	2
5—10 ,,	59	78	24	35	...	...	196	5
10—15 ,,	17	20	10	17	...	...	64	...
15—20 ,,	6	3	2	2	...	...	13	...
20—25 ,,	1	1	...	...	...	...	2	...
25—30 ,,	1	...	...	...	...	...	1	..
30 and over.	1	1	2	1	...	1	6	...
	109	137	49	65	...	1		
Totals	...	246	114		1		361	13

Deaths—Bootle 6; Litherland 7.

Diphtheria: Cases admitted.

AGES.	BOOTLE.		LITHERLAND		FORMBY		Totals	Deaths
	Males	Females	Males	Females	Males	Females		
Under 1 year	1	...	...	...	1	1
1—2 years	...	3	2	...	...	...	5	2
2—3 „	3	2	...	...	5	1
3—4 „	...	5	3	...	1	..	9	5
4—5 „	...	2	...	...	1	...	3	1
5—10 „	...	15	16	5	4	1	44	7
10—15 „	...	5	8	4	2	...	22	8
15—20 „	...	2	3	...	1	1	8	...
20—25 „	2	...	1	...	3	...
25 and over	...	1	...	...	2	..	3	...
Totals	...	33 71	38	11 22	11	3 10	7	103 20

Deaths:—Bootle 14; Litherland 2; Formby 4.

Tracheotomy.—Tracheotomy was performed on two patients for laryngeal diphtheria; one recovered.

Enteric Feyer: Cases admitted:

AGES	BOOTLE		LITHERLAND		FORMBY		Totals	Deaths
	Males	Females	Males	Females	Males	Females		
12 years	...	1	...	...	...	..	1	...
26 „	1	...	1	...	...	...	2	...
49 „	...	1	...	...	...	...	1	...
	1 3	2	1 1	...	...	...	4	...

Age and sex distribution of "Other Diseases" admitted.

AGES	BOOTLE		LITHERLAND		FORMBY		Totals	Deaths
	Males	Females	Males	Females	Males	Females		
1 - 2 years	...	...	1	1	...	...	2	2
2 - 5 ,,	10	2	1	1	1	...	15	3
5 - 10 ,,	12	11	1	...	1	1	26	...
10 - 15 ,,	3	7	1	...	...	1	12	...
15 - 20 ,,	2	6	1	1	...	...	10	...
20 - 25 ,,	...	7		1	...	1	9	...
25 - 30 ,,	...	1		...	...	...	1	...
30 - 35 ,,	...	...		...	...	...	...	...
35 and over		1	...	1	...	...	2	...
	27	35	5	5	2	3	77	5
	62		10		5			

Deaths:—Bootle 2; Litherland 3.

In addition 11 cases of influenza, 2 of measles, 2 of mumps, and 1 of tonsillitis, were sent in by the Military Authorities.

Cases notified under the following headings were re-classified to the number indicated:—

Scarlet Fever:—Bootle 6.

Diphtheria 70:—Bootle 56; Litherland 10; Formby 4.

Enteric Fever:—Formby 1. Phthisis:—Bootle 1.

Non-Zymotic Mortality.—Five deaths occurred from "Other diseases," viz., Broncho-pneumonia 1, Pneumonia 1, Tabes mesenterica 1, Laryngitis 1, Septic infection of Throat 1.

Patients in Hospital, December 31st, 1919.

	Scarlet Fever	Diphtheria	Measles	Phthisis	Totals
Bootle	41	11	1	12	65
Litherland	16	...	...	...	16
Formby	1	..	...	...	1
Seamen's National Insurance Society ... ..	...	...	...	2	2
Lancashire County Council ... ..	...	...	..	1	1
	58	11	1	15	85

APPENDIX 21

HOUSING : STATISTICS FOR 1919.

1.	Number of dwelling-houses in respect of which complaints were made that they are unfit for human habitation.	None.
2.	(a) Action under Section 17 of the Housing Act of 1909.—Number of dwelling-houses inspected under and for the purpose of the section. (b) Number of dwelling-houses which were considered to be unfit for human habitation. (c) Number of dwelling-houses the defects in which were remedied without the making of closing orders.	None. None. The urgent repairs in a very large number of houses were carried out in consequence of notices served under the Public Health Acts.
3.	Action under Section 28 of the Housing Act, 1919 :— (a) Number of orders for repairs issued. (b) Number of cases in which repairs were carried out by the local authority. (c) Number of dwelling-houses voluntarily closed on notice by owner that they could not be made fit without reconstruction	None. None. None.
4.	Closing Orders :— (a) Number of representations made to the local authority with a view to the making of closing orders. (b) Number of closing orders made. (c) Number of dwelling houses in regard to which closing orders were determined on the houses being made fit for human habitation.	None. None. None.
5.	Demolition Orders :— (a) Number of demolition orders made. (b) Number of houses demolished in pursuance of demolition orders.	None. None.
6.	Number of dwelling-houses demolished voluntarily.	Thirteen.
7.	Obstructive Buildings :— (a) Number of representations made (section 38 of the Housing Act of 1890). (b) Number of buildings demolished. (c) Number of representations still under consideration.	None. None. None.
8.	Staff engaged in housing work with, briefly, duties of each officer.	None engaged solely on housing work; there is no systematic inspection of houses.

APPENDIX 22.

LOCAL POWERS RELATING TO PUBLIC HEALTH.

(1) ACTS OF PARLIAMENT ADOPTED BY THE COUNCIL.

Infectious Disease (Notification) Act, 1889.

Infectious Disease (Prevention) Act, 1890, sections 5, 6, 14, 15, 16, 17, 18, 20 and 21.

Public Health Acts Amendment Act, 1890, Part III.

Housing of the Working Classes Act, 1890, Part III.

Notification of Births Act, 1907.

Sections 22, 23, 24, 33, 35, 44, 50, 51, 52, 53, 54, 55, 57, 61, 62, 62, 63, 64, 65, 69, 70, 71, 72, 73, 74, 75, 85, 90, 91, 93 and 95 Public Health Acts Amendment Act, 1907.

(2) BOOTLE CORPORATION ACTS AND ORDERS.

Bootle Corporation Act, 1890.

Bootle Order, 1897; confirmed by the Local Government Board's Provisional Orders Confirmation (No. 16) Act, 1897, relative to Sanitary Improvements.

Bootle Corporation Act, 1899.

Bootle Order, 1914; confirmed by the Local Government Board's Provisional Orders Confirmation (No. 6) Act, 1914, relating to the substitution of moveable ashpits for fixed ashpits.

(3) BYE-LAWS AND REGULATIONS IN FORCE IN THE BOROUGH.

New Streets and Buildings, 1869.

Nuisances, 1887.

Slaughter Houses, 1887.

Good Rule and Government, 1888.

New Streets and Buildings, 1890.

Common Lodging Houses, 1894.

Dairies, Cowsheds, and Milkshops, 1894 and 1902.

Carriage of Offensive Matter through Streets, 1898.

New Streets and Buildings and Alteration of Buildings, 1899.

Removal of House Refuse and Nuisances, 1899.

Structure of Walls of New Buildings, 1900.

Structure of Foundations of New Buildings and Construction of New Streets, 1904.

Hospitals provided by the Corporation, 1904.

Houses let in lodgings, or occupied by members of more than one family, 1904.

New Buildings. Ashpits in connection with Buildings. Removal of House Refuse and Nuisances, 1907.

New Streets (width), 1908.

Construction of Walls of New Public Buildings and New Warehouse Buildings, 1910.

Parasitic Mange—Regulations as to cleansing and disinfection, 1910.

Houses let in Lodgings, 1912.